REPORT

of

The School Health Committee

PART I

MINISTRY OF HEALTH
GOVERNMENT OF INDIA

Inauguration of the School Health Committee by Shri D. P. Karmarkar, Union Minister for Health, on 8th April, 1960

SMT. RENUKA RAY, M.P.
Chairman.

GOVERNMENT OF INDIA
MINISTRY OF HEALTH
SCHOOL HEALTH COMMITTEE
C.H.E.B. Building,
Temple Lane, Kotla Road,

New Delhi-1, the 2nd December, 1961.

My dear Karmarkarji,

With reference to Government of India order No. F.2/202/58-PW(Pt.), dated the 16th February, 1960, I have great pleasure in forwarding the Final Report of the School Health Committee. The Report is in two volumes. The second volume contains the appendices.

2. We submitted our interim proposals as early as July, 1960 as we were anxious that these be taken into consideration when the draft outline of the Third Plan was being formulated. We did this because we knew that it will take sometime before we could collect and analyse all the relevant data and work out the details of the scheme of school health and school meal programmes.

3. I earnestly hope that with the zeal you have been promoting child health and welfare programmes in the country, it will not be difficult for you to impress upon the Central and State Governments to find resources for implementing the programmes recommended by us.

4. On behalf of the Committee and myself I should like to express our gratitude to you for having given us the privilege to draw up a plan for school health of the children upon whom lies the future of our country.

Yours sincerely,

(RENUKA RAY)

Shri D. P. Karmarkar,
Union Minister for Health,
Government of India,
New Delhi-1.

"It pains one to see neglected children in villages. It is not that they are orphans for they have parents but none the less their condition indicates as if nobody looks after them. It is a matter of regret that the task which we should have attended to primarily, has not been done. But there are many similar things for which we have to have regrets. It is, however, not possible to bring about a change in conditions in India with a magic wand. The problem of giving priorities in the plans is a difficult one. What should come first and what the second and the third and which of them should be the last ? But in my opinion child welfare should have the first priority in all our activities . . . . If we neglect our children today, if we do not look after them well, we will be creating many more difficult problems for ourselves in the future."

— Jawaharlal Nehru

Presentation of the School Health Committee Report by Mrs. Renuka Ray, Chairman of the Committee, to the Union Minister for

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The members of the School Health Committee with the Union Minister for Health, Shri D. P. Karmarkar, during the presentation of the School Health Committee Report

MEMBERS OF THE SCHOOL HEALTH COMMITTEE

1.	Shrimati Renuka Ray, M.P.	Chairman
2.	Shrimati Tara Cherian,	Member
3.	Dr. N. B. Kabbur,	Member
4.	Shri K. R. Ramachandran, Union Ministry of Education	Member
5.	Dr. M. Swaminathan, Assistant Director (Dietetics), Central Food Technological Research Institute, *Mysore*.	Member
6.	Dr. R. P. Devadas, Union Ministry of Food and Agriculture.	Member
7.	Dr. C. Gopalan, Director, Nutrition Research Laboratory, *Hyderabad* (*Dn*).	Member
8.	Shrimati Pushpa Mehta, General Secretary, Indian Council for Child Welfare.	Co-opted Member
9.	Dr. V. Ramakrishna, Union Ministry of Health	Member-Secretary

CHAPTER I

INTRODUCTION

The School Health Committee was appointed by the Government of India in February 1960 to assess the present standard of health and nutrition of school children and suggest ways and means of improving them. The detailed terms of reference of this Committee were as follows :

(*i*) To examine the present position of school health programme in the country in all its aspects (excluding physical education, games and sports), *e.g.*, prevention of diseases, medical care and follow-up service, nutrition, health education, healthy environment, etc., of the students at all stages of education and to suggest—

  (*a*) further survey of studies if required; and

  (*b*) how the work of various agencies such as medical, social and welfare associations can be co-ordinated to assist in the pomotion of health of school children.

(*ii*) To examine studies and surveys so far made to assess the nutritional standard of school children and to indicate—

  (*a*) further survey or studies needed in any specific areas; and

  (*b*) to give concrete suggestions to institute appropriate measures to improve standards of nutrition among school children recommending, *inter alia*, ways and means for financing and organising such programme.

(*iii*) To examine and recommend the possibility of entrusting Primary Health Centres and other Organisations for conducting a comprehensive and realistic school health programme in association with the local education administration. The recommendations should include measures to develop an effective school medical service suitable to the country.

(*iv*) To examine the present facilities available for promoting nutritional standards of pre-school children and to suggest practical measures to improve the present position.

2. While inaugurating the proceedings of the Committee on the 8th April, 1960, the Union Health Minister, Shri D. P. Karmarkar, emphasised that the health and well-being of the children constitute the solid foundation on which the future of the nation depended a great deal. He, therefore, desired that maximum attention should be devoted to the protection of health of the children, specially of the school-going age. The Union Education Minister, Dr. K. L. Shrimali, while welcoming the appointment of this Committee, stated that unless the whole personality of the child is developed, full justice is not done. He suggested that a deep awareness must be created in our society that its future depends on children.

3. At its first meeting, the Committee discussed the general lines of approach to the problems and constituted, for convenience of work two sub-committees :

(*a*) on school health services; and

(*b*) on nutritional needs of pre-school and school children.

4. A detailed questionnaire (*Appendix I*) was sent to various administrators, legislators, specialists and experts in the field of nutrition and public health, education and social work. The replies received to the questionnaire were analysed both at the All-India Institute of Hygiene and Public Health, Calcutta, and at the Directorate General of Health Services, Central Bureau of Health Intelligence. The results of the analysis with the analysed data are shown in *Appendix II in part II* of the Report.

5. The sub-committees took into consideration all the information made available including the results of analysis of the questionnaire, reports of visits of the Committee and the individual members to different parts of the country. The reports submitted by the sub-committees were discussed by us in a general meeting.

6. The Committee visited the States of West Bengal, Madras, Maharashtra, Gujarat and Mysore and the Union Territory of Delhi. Besides, the members of the Committee also individually visited Andhra Pradesh, Kerala, Orissa and Rajasthan. This was done with a view to make on the spot study of the schemes and the programmes in operation. In the States, the Committee had discussions with Chief Ministers, Ministers for Health, Education, Planning, Food and Agriculture and Community Development and their officials, including Secretaries of these departments and heads of the executive departments. Apart from this, discussions were also held with the representatives of non-official organisations working in the field of health and education and with leaders of medical profession, prominent social workers and teachers. Institutions where school health and meal programmes are being carried out both in rural and urban areas were visited by the Committee. These visits were instructive. In addition to these discussions, the Committee had meetings with the Central Ministries of Education, Health, Planning, Food and Agriculture and Community Development. The discussions were also held with the members of the Planning Commission.

7. These discussions were quite helpful to us in formulating our recommendations. We believe they were also valuable to the State Governments who were then in the process of formulating their plans. Eight States/Administrations have included in their Plans provision for mid-day meals to school children.

We are convinced that there is a great deal of enthusiasm on the part of the State Governments and community, particularly in the rural areas, for providing mid-day meals to children. The Committee feels that if there is an agency, which can help the State Governments to initiate such programmes, it will not be difficult to secure the communities' contribution towards these programmes. It is for this reason that we have recommended the establishment of a National School Health Council at the Centre and similar Councils or Committees at State and lower levels.

8. In July 1960, we submitted to the Government our interim proposals. This was done with a view to enable the Government and the

Planning Commission to incorporate schemes recommended in this report in the Third Five Year Plan which was then being finalized.

9. The recommendations made in our interim report were considered by the Central Council of Health at its meeting held in Jaipur in October 1960. The Council passed the following resolutions :

> "The Central Council of Health having considered the interim proposals of the School Health Committee constituted by the Union Ministry of Health reiterates its earlier recommendations for including a comprehensive school health service scheme in the Third Five Year Plan and to give top priority to it and recommends that :
>
> (*i*) adequate provision be made by the Planning Commission for conducting an integrated and comprehensive programme of child health in the Third Plan period;
>
> (*ii*) Central assistance should be provided for the promotion of this programme;
>
> (*iii*) The Government of India should continue the present pattern of Central subsidy to States for provision of school meals and encourage other States to utilise Central assistance;
>
> (*iv*) effective co-ordinating machinery at different levels be set up for implementation of this programme; and
>
> (*v*) the students' health education units should be established in the State Health Education Bureaux at an early date and the State School Health Committees be constituted immediately."

10. We have noted with regret that the school health or school meal programmes have not received priority during the first and second plans. The Third Five Year Plan states :

> "Care of the health of such large numbers of children is not only vital in itself, but is a most important aspect of the health of the community as a whole. As the School Health Committee, which submitted its interim report about a year ago, pointed out, the incidence of sickness and disease among school children due to malnutrition and other preventive causes is extremely high. It is suggested that the Health programmes drawn up for the Third Plan in the States should ensure certain minimum services for the care of health in the schools. These are : (1) clean drinking water and sanitary facilities in schools; (2) arrangements for medical inspection; (3) follow-up services in association with the primary health unit in the development block; and (4) instruction of teachers in health education."

> "The movement for mid-day meals provides a special opportunity for each urban or rural community not only to participate in the education effort, but also to improve nutrition and health in the schools and to assist the poorer students. Although the programme is at present somewhat limited on account of financial considerations, it is suggested that State Governments should endeavour to provide for it, at any rate, wherever local communities come forward to take their due share in it."

11. The Third Plan, however, does not provide any adequate allocation for school health and school meal programmes. This is disappointing, particularly, in view of the fact that the planners have commented upon the need of the services. We have considered the matter in detail and have felt that so far as the mid-day meal was concerned, our interim proposals could stand through the adjustment of internal resources and external assistance, which may be available in a much larger measure, as present indications show. In addition, there would be the communities' help which is likely to come in much greater measure in the future. It would be unfortunate if the programme is to be scaled down because of lack of resources.

12. When we had drawn up the interim proposals we had expected that the personnel required for school health services would be trained at a much faster rate. But this has not happened. Under the circumstances, the school health services will have to be scaled down until such time as atleast the auxiliary nurse-midwives are available in adequate numbers. We have thus been compelled to scale down to a considerable extent the programme of school health services for the Third Plan period. But this reduced programme, we should like to point out, is meant for those States where there is lack of adequate medical personnel. We feel that in West Bengal and other places where sufficient number of trained health personnel are available, the establishment of school health services should have a much wider coverage even during the Third Plan period.

13. One of the problems on which we were asked to give our considered opinion relates to the examination of the present facilities available for promoting nutritional standards of pre-school children. We have suggested that in the distribution of the total milk supply available in the country, there should be a priority for nursing mothers, infants, pre-school children and school children. If necessary, legislative measures should be taken to secure this. So far as milk available through international agencies is concerned, it should be reserved mainly for pre-school children. In view of the inadequate machinery through which the pre-school child can be approached, we have not been able to suggest a comprehensive scheme. This will not be possible until such time as institutions are set up on a nation-wide scale to cater to this age-group. We have suggested that any surplus milk left over after attending to the children of this age-group should go to the primary school children.

14. We have not made any recommendation about the physical education of the children as it did not lie under our purview. We learn that another Committee of the Ministry of Education on physical education has been appointed to look into this aspect of the school health programme of the children.

15. The recommendations contained in the final report are thus modest, considering the vast magnitude of the problem. In drawing up these recommendations, the present limitations with regard to the financial resources and trained personnel have been kept in mind. A programme which should be practical and feasible under the existing conditions has been suggested.

16. We have noted that in the Third Five Year Plan, physical programmes accepted for implementation over the five-year period are not limited by the financial resources immediately in sight. The outlays have

thus necessarily to be regulated with reference to resources actually mobilised from year to year. There might be shortfalls in expenditure on various schemes included in the Third Plan. We suggest that the provision required for mid-day meal programme may be made in annual plans of the Centre and States when these are finalized. The Central assistance towards this programme, on the existing pattern, would, no doubt, be available to the States who provide for this programme in their annual plans.

The Ministry of Health has done a great service to the nation by focussing the attention of the public to a neglected health problem which is of utmost importance for raising the standard of health of future generations. We were pleasantly surprised to see enormous widespread enthusiasm of people of all walks of life showing their keenness to improve the health and well-being of children. The Health Ministry provided us an opportunity to have this experience and gain a deep insight into the problems connected with school health. The Health Ministry provided necessary facilities for the proper working of the Committee. They gave the services of a Secretary, a Joint Secretary and Stenographers. The officers of the Ministry of Health and the Directorate General of Health Services gave all possible help in transacting technical and other business of the Committee. The Health Minister evinced very keen interest and gave very valuable suggestions. We are indeed very grateful to Shri D. P. Karmarkar, Health Minister, the Secretary, Ministry of Health, the Director General of Health Services and various other officers.

Our thanks are also due to Dr. (Mrs.) Mukta Sen, Director of the All-India Institute of Hygiene and Public Health, Calcutta, to the officers and staff of the Central Health Education Bureau and the Central Bureau of Health Intelligence, for providing various types of assistance to the Committee in the drafting of its report.

We were greatly benefited by the discussions we had with the Minister for Planning and the officers of the Planning Commission. The Planning Commission were kind enough to spare the services of Shri L. L. Sarin, Senior Research Officer of their Health Division to assist the Committee.

The Committee gratefully acknowledges all the help and technical advice it received from other Ministries of the Government of India especially, the Ministries of Education and Food and Agriculture. The latter two Ministries along with the Health Ministry not only provided very useful information but also assisted the Committee in arriving at important conclusions. We highly value this assistance.

We are overwhelmed with the earnestness, interest and importance, the State Governments and their Chief Ministers showed towards our Committee. Chief Ministers, Health, Education and Agriculture Ministers gave much of their precious time to discuss with the Committee and to give answers to various questions that arose during the working of the Committee. The States that were visited by the Committee, provided all the necessary facilities for visiting important institutions, meeting experts and leaders and extended all courtesies. We are grateful to all the Chief Ministers and other Ministers of the State Governments who made the work of the Committee smooth and fruitful. We also thank the State Departments of Health, Education, Community Development, Food and

Agriculture and Planning who participated in our discussions and provided all the relevant information. Some of the State Governments sent their representatives to attend some of the meetings of the Committee. We thankfully acknowledge their splendid contribution.

The generous response received by the Committee from various voluntary organisations, experts, professional and other leaders, was a rewarding experience. We express our deep appreciation to all these organisations and individuals who willingly cooperated and guided the deliberations of the Committee.

International organisations like WHO, UNICEF, UNESCO, FAO and the bilateral agencies like T.C.M. (USA) spared the services of their outstanding experts in enlightening the Committee on various intricate problems of school health and school meal programme. Besides, other organisations like CARE and the Ford Foundation also assisted the Committee. We wish to record our sense of appreciation of all such assistance.

This report is a result of combined effort of not only those mentioned above but also many others whom we may not have specifically mentioned. To this latter category belong many health, education, social welfare and community development workers whom the members of the Committee had opportunity to meet, talk to and discuss various aspects of school health programme. We are richly benefited by these discussions, because they helped us to view things from a realistic and down-to-the-earth point of view.

The Committee would like to make special mention of the services rendered by the Secretary, Dr. V. Ramakrishna. The Committee also wishes to thank the Joint Secretary and members of the staff attached to the Committee for their devoted assistance.

We earnestly hope that the report will receive utmost consideration from the Government as well as people as we firmly believe that in its implementation lies the future of the nation in the making.

(RENUKA RAY)

M. P., Chairman

(TARA CHERIAN)	*Member*
(N. B. KABBUR)	”
(K. R. RAMACHANDRAN)	”
(M. SWAMINATHAN)	”
(R. P. DEVADAS)	”
(C. GOPALAN)	”
(PUSHPA MEHTA)	”
(V. RAMAKRISHNA)	*Member-Secretary*

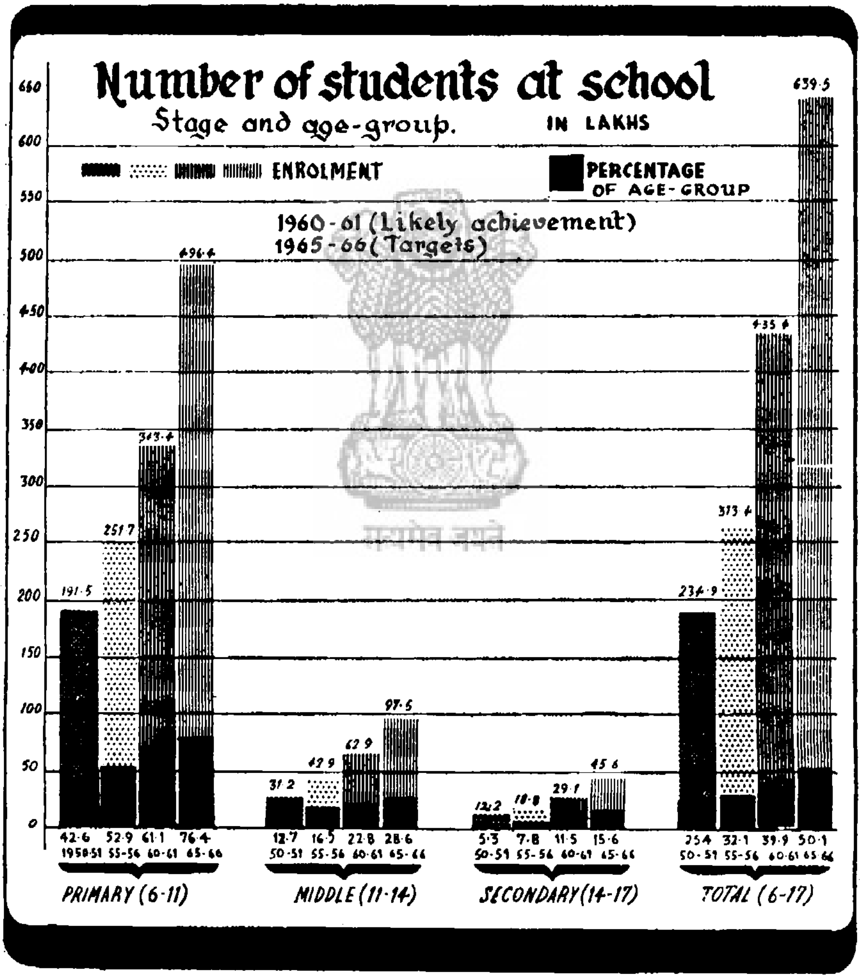
CHAPTER II

SCHOOL HEALTH SERVICES—APPRAISAL OF EXISTING SITUATION

Pupils at School

Over the decade 1951-61, the number of students has increased from 23.5 million to 43.5 million. The Table below shows the progress in this regard during the first two Plans and the likely increase in the Third Plan :

TABLE I*



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*Source : Third Five-Year Plan Report.

2. At the end of the Third Plan, about 64 million children will be in school. The future of our country rests on these children. Today's children will become the citizens and leaders of tomorrow. The proper bringing up of children is, therefore, all the more important. For, besides being a desirable end in itself, it is also a duty we owe to the world of tomorrow. We feel that opportunities to develop properly should be available to all children in due course. It is suggested in view of the limited resources, the recommended scheme of school health services, should atleast be made available in the beginning to primary school children, *i.e.*, children between the ages 6 and 11 years.

Reasons for Special Consideration of the School-age Group

3. "Selection of one segment of the population for special health services pre-supposes clear understanding of the reasons for such selection. Children of school-age should be considered as a segment of the lifetime of the whole population. During this segment of the life span, all children are exposed to situations and are undergoing developmental changes which call for watchful care."*

4. For children to learn effectively, good health is essential. Deficiencies in vision or hearing and other handicaps can make learning difficult. Sound nutrition is closely related to progress in education. The poorer the nutrition, the more difficult it is for the child to learn and cope with school life. Under- and mal-nutrition is a serious obstacle to promotion of physical and mental health.

The Present Health and Nutritional Status of the Children in the Country

5. The present position with regard to the health and nutritional status of the children in our country is very unsatisfactory. Extensive surveys were carried out in different parts of the country. The findings showed that sickness and mortality rates of children in India are among the highest in the world. The incidence of diseases directly attributable to malnutrition and other preventable causes is also distressingly high. Surveys were recently carried out in several States of South India under the auspices of Indian Council of Medical Research and World Health Organisation. They have revealed that nearly 2 per cent of children belonging to the poor socio-economic groups suffer from frank signs of deficiency. The magnitude of the problem appears colossal, for every child suffering from frank signs, there are, probably, 10 children suffering on the border line of malnutrition. One of the commonest causes of preventable blindness of children in these areas is Vitamin 'A' deficiency. In Gujarat State, under the Baroda Municipality's school medical inspection scheme, about 32,500 children were examined in the year 1959-60. Out of these over 26,000 were found to have some kind of defect or other.

6. A survey among students was undertaken by the University of Calcutta in 1954. It revealed that less than 25 per cent of the children examined had good nutritional status. Nutritional disorders constituted 40.0 per cent, closely followed by defective vision (30.0 per cent). The common diseases found were : dental caries and pyorrhoea, skin diseases, enlarged tonsils, enlarged spleen, diseases of heart and lungs besides many minor ailments.

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*WHO Expert Committee on School Health Services, Geneva—August 1950.

7. Yet another survey was carried out in Deoria district of Uttar Pradesh. It was to find out the incidence of Goitre among children. It showed that out of about 2,000 boys examined, roughly 30 per cent had Goitre. Similar surveys carried out in Uttar Pradesh have shown that the children in the districts of Dehra Dun, Tehri, Pauri, Bijnor, Budaun, Gonda, Basti and Gorakhpur are also affected with this disease. A clinical survey of about 6,400 boys (about 90% living in rural areas and the rest in urban areas) in various schools of 16 districts of Uttar Pradesh was carried out in 1949-51. Out of 6,400 boys examined more than 3,700 showed one or more defects.

8. We cite the results of another project carried out, during the year 1959-60, in Delhi State. Over 8,400 children (both urban and rural) were examined. The percentage of defective children was as high as 84. The common defects found were : eye diseases, malnutrition, enlarged tonsils and adenoid and dental caries.

9. We need not state the results of similar surveys carried out elsewhere in the country. For we are positive that the position in the other parts of the country is no better. The above considerations call for the immediate institution of programmes designed to improve the health and nutritional status of children. In most parts of our country, school health services have been practically non-existant or imperfectly developed.

Recommendations of the Earlier Committee

10. Certain specific recommendations are contained in three valuable earlier reports. The Joint Committee of the Central Advisory Boards of Education and Health dealt with this subject in great detail in the year 1941. Another useful report was issued by the Central Advisory Board of Education in 1944. This Committee, however, did not visualise the possibility of a comprehensive health service combining in itself both preventive and curative health functions for all sections of the community. It recommended on the basis of the practice in England, the creation and maintenance of a school health service which would be separate from the existing provincial (State) health services, preventive and curative and which would be under the administrative control of the Education Department.

11. The Health Survey and Development Committee (1946) suggested a modified scheme. It stated :

> "In proposing a scheme for India, where we are practically in the position of starting the organisation from the beginning, we believe it will be of advantage to recognise that the question should be considered primarily from the stand-point of the school child for whom the service is being provided. From his point of view, continuity of health protection is of fundamental importance. Such continuity requires that the provision of medical care for school children should not be isolated from the general health services."

12. We have very carefully considered the above view-point. We agree that the special services, which are established for certain sections of the population, such as, those for children or mothers, should not function independently of the general health services for the community.

For effective planning, the cooperation of school health services with other services such as those for infants and pre-school children, the work of the public health and education departments, and the services of general practitioners and hospitals is necessary. School health services should form part and parcel of the general health services for the community. We feel that a parallel organisation separate from the community health organisation, solely devoted to school health service, is neither desirable nor practicable under existing circumstances.

13. Recognising the urgent need of adequate health services for the student community throughout the country, the Central Council of Health adopted the following resolutions at their third meeting held in 1955 :

> "The Central Council of Health viewing with concern the lack of adequate student health services throughout the country and recognising the urgent need of adequate health services for this most important group in the community, recommends that all State Governments should take immediate steps to establish a student health service under their health departments so as to give the entire student population proper medical care including nutrition and physical education."

14. Subsequently in 1958-59, in their Forty-fourth Report,, the Estimates Committee of the Parliament made the following recommendations on school health services :

> "The Committee are of the view that a comprehensive programme for improving the standard of health of school children is necessary and should be based on surveys already conducted or to be undertaken. In this connection the Committee were informed that the Ministry propose to appoint an expert committee presided over by a leading public man interested in the subject to examine the lines on which health survey of school children should be conducted and also to suggest ways and means for the promotion of nutrition among school children. The Committee feel that this is a good proposal because if the health of the school children deteriorates, the future of the country is at stake. They, however, suggest that this Committee should also indicate as to how the various efforts in this direction made by the different agencies can best be co-ordinated. They further suggest that such a Committee should consider the feasibility of harnessing the medical profession through the local medical associations for the purpose."

15. It is needless to point out that although the need for school health services has been felt by one and all, no concrete steps have so far been taken either by the State or the Central Government to implement any comprehensive programme particularly in the rural parts of the country.

The Present State of School Health Services in Different States

16. The Health Survey and Development Committee (1946) reviewed the development of School Helath Administration in our country as follows :

> "School medical inspection was started first in Baroda City in 1909. In the succeeding years practically every Province introduced

> some form of school health programme but the area covered by the service varies widely as well as the types of schools in which medical inspection is carried out. The schemes seem to cater more for middle and high schools than for primary schools. The Joint Committee of the Central Advisory Boards of Health and Education drew special attention to the frequency with which a system of medical inspection was started in the Provinces, only to be abandoned after a short while as a measure of economy. There are a number of instances of change in policy which seem to indicate that there has not been a clear appreciation of the fundamental necessity for, and of the essential characteristics of a school medical scheme calculated to promote the health of the school child. The Committee emphasised that satisfactory arrangements for school medical inspection and treatment should form an essential part of any efficient system of public education. The conclusion reached in the report was that, with certain exceptions, school health work in British India is carried on in a perfunctory manner. Environmental hygiene is striking in its absence, particularly in the rural areas. Medical inspection is undertaken with inadequate provision, in many cases, for the treatment of the defects which are detected and with even less provision for preventive work through a follow-up service. Health education has produced little tangible results."*

17. We find that during the last decade some advance has been made, mostly in urban areas, towards medical inspection of school children and treatment. The progress, however, has been slow. The overall picture has not changed perceptibly. Although hygiene and health education find a place in the school curriculum in some States, the emphasis is not laid on their practical aspect.

18. During the last decade, a few States have set up school health clinics in the districts. Services are being provided through the school medical officers or health officers. In most of the schemes taken up by the States in urban areas, the work is mostly limited to the medical inspection of children. The treatment facilities are not adequately provided. The larger municipalities and corporations are also providing school health services to the children in their areas. Even where provisions have been made for school health services there have been lapses in carrying them out. This can be seen from the extracts given below from the reports (1959) of the Medical Officer of one of the cities of the country :

> ....Under this scheme, there is only provision for medical inspection of male children of urban areas without any follow-up treatment. Out of the two posts one post remained always vacant and the other doctor was assigned by the authorities some more important job other than school medical inspection work. No work was carried out under this scheme during the year under review...........

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*These brief notes on the development of school health services in India are based on the information contained in the Report on School Medical Inspection of the Joint Committee of Central Advisory Boards of Health & Edn. (1941).

> Due to official bottlenecks, the post of school eye surgeon was vacant from 6th February, 1958 to 31st May, 1959 and that of school dental surgeon from 8th May, 1958 to 3rd November, 1958. These were great contributory factors in giving a lot of disappointment to the parents............"

19. In the rural areas of the country, the school health services are required to be provided through the primary health units. We have, however, gathered the impression that in most of the States of the country, such services are being provided only in a perfunctory manner. It has been noted that in several primary health centres, it has not been possible to get the services of a medical officer. Even in the primary health units, which have the full complement of staff, it is not possible for a single medical officer to inspect and provide remedial treatment to all the children studying in schools in the community development block. In a few States, the medical inspection is limited to the main headquarters of the primary health units. In most cases, however, the remedial facilities are not adequately available. We have observed that there is generally lack of follow-up of the pupils examined.

20. It is evident from the above that while some sort of services are available in big cities and towns of the country, the smaller towns and particularly the villages do not have any school health services in an organised manner.

21. We are of the opinion that the facilities available at present for school health in different States are not satisfactory although the system of school medical inspection has been in vogue for a number of years in many States. The carrying out of the medical inspection in a perfunctory manner, the non-availability of remedial facilities, lack of follow-up even in the cases of those declared to have defects and the lack of cooperation between the school authorities and parents are some of the factors which have contributed to unsatisfactory results in the school health services. We feel, therefore, that unless the present system is considerably improved, it would be a mere waste of time and money to continue it.

School Health Services in Certain Foreign Countries

22. We may mention here briefly the school health services available* in some other countries. There is a wide variation in organisation, scope and conduct of school health services in different countries.

In U.K., the school health services are provided both in clinics and at schools by the Local Education Authorities with the grants from the Ministry of Education. Free treatment is provided under the National Health Service to all children. In the Soviet Union, the school health service is a continuation of the Health Services for pre-school children which is a comprehensive scheme from birth till the children complete the elementary education. All schools with 800 or more pupils have full-time doctors and nurses. There are also school nurses and dentists in schools. No uniform system is followed in all the States of U.S.A.

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*Brief notes taken from materials collected by the World Confederation of Organizations of the Teaching Profession (1960).

Frequent health studies and surveys are undertaken to ascertain the effectiveness of the programme followed and suitable changes are made in the programme wherever necessary. The Department of Health and the Board of Education jointly work in relation to planning, executing and supervising the school health programme.

The French Ministry for National Education has a Department of School and University Health which includes : A central coordinating body; supervisory doctors; regional doctors (one per university); and departmental doctors assisted by area and school doctors. The school health services cover all school-age children including college and University students.

23. In Japan, health services are regarded as an integral part of school education. Besides health teaching, the school has a health service organisation composed of school doctors, dentists, pharmacists and nurses. Health services are conducted by cooperative efforts of the school, Ministry of Education, Health Centres and other medical agencies.

In the Philippines, the public school medical, dental and nursing services are administered by Bureau of Public Schools, Department of Education. They are conducted by technical personnel such as school physicians, school dentists and school nurses, who are all Government employees. The school health services operate on a division or city level. Generally, each school division has a complement of one school physician, several school dentists and school nurses.

In Ceylon, the school has no direct legal role in the provision of health services. There is a Government department of health and sanitary services which provides school medical services under the direction of school medical officer. Children in outlying areas have to go to the nearest hospital for treatment. Treatment is free at the school clinics and in all the hospitals and dental clinics.

24. In certain countries, parents are invited at the time of medical examination of their children. In Britain, headmasters are required to be present when examinations take place; in Italy, the presence of the parents is required. Cumulative health records are kept in most countries which provide health services. Health inspection of children takes place at the time of school admission. Children are generally 6 to 8 years old at this time. The second inspection is usually done at the age of 10—12 years in most of the countries. Further, periodic examinations also take place in certain countries. A few countries provide for an X-ray examination of children. The nurses and teachers play an important part in the school health programmes of various countries.

CHAPTER III

SCHOOL HEALTH SERVICES—FUNCTIONS OF A SCHOOL HEALTH SERVICE

The purpose of a school health service is "to prepare the child for education and for citizenship"*. The school health organisation seeks to remedy or ameliorate, as far as possible, the environmental or other factors which militate in the home and in the school against the child's attaining full measure of his mental and physical development. The physical education of the child, improvement in his nutrition, the inculcation of healthy habits by proper health instruction and the securing of the active co-operation of the parents are to be pursued as an integral part of the campaign for improved school health.

2. The functions** of a school health service are

- (*i*) Health measures, preventive and curative, which include :
  - (*a*) the detection and treatment of defects and
  - (*b*) the creation and maintenance of a hygienic environment in and around the school, and
- (*ii*) Measures for promoting positive health which should include :
  - (*a*) the provision of supplementary food to improve the nutritional status of the child;
  - (*b*) physical culture through games, sports and gymnastic exercises and through corporate recreational activities; and
  - (*c*) health education through formal instruction and the practice of a hygienic mode of life.

3. Provision of healthful school environment is a function of utmost importance for the health and well-being of school children. Many of the communicable diseases could be easily prevented if there are enough sanitary facilities, safe water supply, disposal of human waste and rubbish and good lighting and ventilation in the school and its surroundings. We have observed that some of these basic facilities are lacking in many schools. Besides these, there is lack of enough accommodation, resulting in the over-crowding of school rooms which also militates against health and facilities spread of contagious diseases. As this is a very important part of comprehensive school health service, we will be dealing with this in some detail in a separate chapter.

4. Next to the healthful school environment, inculcating habits of cleanliness, both personal and social, is very important at this young school-age. A separate chapter has been devoted in this report for this

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*Sir George Newman.

**Health Survey & Development Committee Report.

vital subject of 'school health education'. We also feel that it is essential to pay special attention to some of the contagious diseases due to unclean habits that are likely to spread in a school situation where children come together. In this connection, we may mention that scabies, skin diseases, pediculosis and eye diseases like congunctivitis and trachoma are commonly found among school population. It is necessary to make children to look after their oral hygiene also as affection of the teeth and gums, pyorrhoea, dental caries affect the general health of the pupils. The Committee recommends that personal cleanliness drills should be instituted in lower primary classes.

Prompt care is essential to see that the defects of the following organs do not handicap the future of the child.

Care of the Eyes

6. There is little doubt that under a school health programme, all children should have a thorough eye examination. Minimum procedures include continuous teachers' observation for signs of suspected eye disorder and an annual programme of vision-testing. These procedures are possible in every school, since equipment needed is inexpensive and special personnel are not essential. Many children have eye defects that can be detected by observation by teacher and parents. School tests for visual acuity should be 'screening' tests. These are not intended to diagnose the nature of the eye defects. Children with. any symptoms of eye defects should be referred to an Ophthalmologist. Special facilities should be provided at hospitals for the treatment of eye infections and abnormalities among children and for fitting of glasses.

Care of the Ear, Nose & Throat

Care of the ear, nose and throat is also equally important as it is likely that the special senses will be adversely affected if not properly attended to in time, specially during the growing age. We have found that affection of these organs are common among school children. From this point of view, the teacher should be able to observe frequent occurrences of sore throat, discharges from the ears, habit of mouth-breathing which indicate enlargement of tonsils and adenoids. Such cases should be referred to the medical authorities concerned as early as possible.

Care of the Teeth

7. The School Health Programme should also include arrangements for dental health education and care because dental health is of great importance to the prevention of ill-health. Prevention of dental caries depends mainly upon detection of early defects and remedial treatment. We are aware of the shortage of dentists in our country and thus of the fact that it may not be possible to appoint whole-time dentists for school health programme. We, therefore, recommend that mobile dental clinics should be set up and utilised for the treatment of school children in rural areas.

Medical Examination

8. While it is necessary that all children should be medically examined, but in view of the limited resources available, first priority should be given to the children in the primary school. We are, however. seriously

against the common cursory medical inspection carried out as routine. We feel that the medical examinations should be sufficiently painstaking and comprehensive. These should also be sufficiently informative to guide school personnel in the proper counselling of the children. The newly admitted children should, undoubtedly, receive first attention at the time of their entrance into the primary school and again four years later. The limited facilities available today do not permit medical examination at more frequent intervals. The children who show serious conditions at entrance and those noticed by the teachers to have signs of defects and illness would, no doubt, require more frequent examination and follow-up.

9. The auxiliary nurse-midwives along with the teacher should help the medical officers with regard to the recording of history and determination of heights and weights of the children. With such assistance, it should be possible for a medical officer to complete the medical examination of each pupil in about 10 minutes on an average. It is desirable that parents should be persuaded to be present during their examination.

10. In addition to these periodical medical inspections, the medical officer will examine the pupils reported to be unwell or below par by the school teacher or the auxiliary nurse-midwife. It is expected that the auxiliary nurse-midwives should visit the school at least once a month. During these visits, it would be possible for her to collect information regarding fresh illnesses and also absenteeism of the children. This might facilitate institution of remedial measures if called for. It should be possible for the teacher with some preliminary training to spot signs of some common diseases.

11. With the provision of school health services, it is necessary that adequate space is made available for the medical inspection of the children. In big schools, it should be possible to provide a separate room for this purpose. This room should be located near the administrative offices. In small schools or the schools in villages, the headmasters' room can be utilised for this purpose on the day of medical inspection.

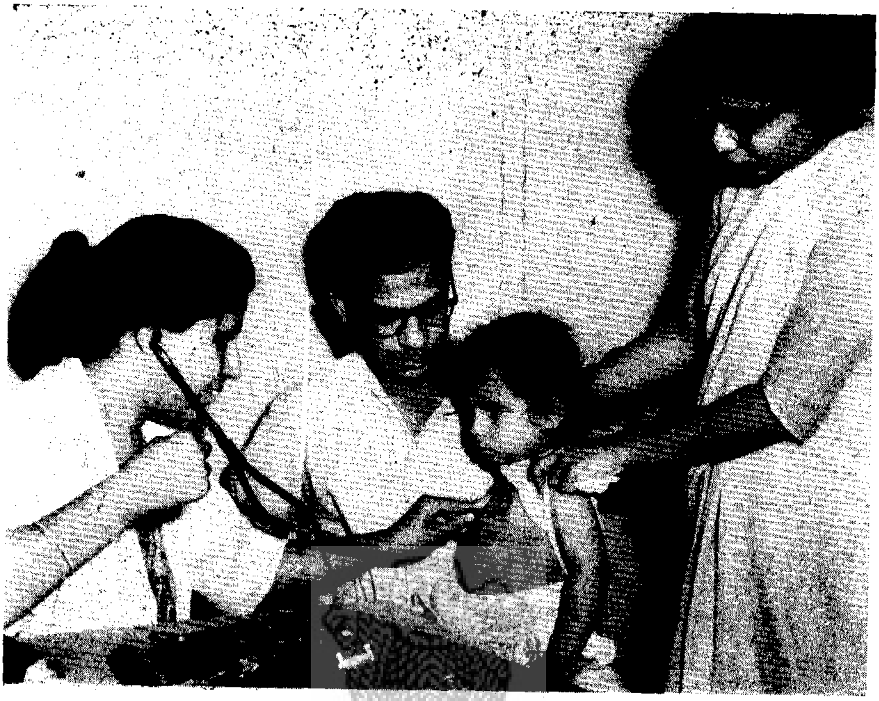
Provision of Treatment Facilities

12. An important drawback with regard to the school health service programme currently in operation in different States of the country is the absence of a satisfactory system for institution of remedial measures and follow-up. We strongly feel that any school health service will fail to achieve its objective unless treatment is secured. The ultimate value of much of the work to be done for the school child depends upon the provision of good treatment. The school health service, therefore, must consider as one of its functions the securing of facilities for treatment which are available for school children. In our opinion, the following steps are necessary in this regard :

(*i*) If the defects observed are of such a nature that they could be treated in the primary health units, the medical officer and the auxiliary nurse-midwife should arrange for treatment in the centre itself.

(*ii*) The centre should conduct clinics solely for school children on one afternoon every week. The time and day should be notified to all the schools in the area of the centre.

(*iii*) Where the defect is of such a nature as to call for more specialised treatment, transport should be made available for

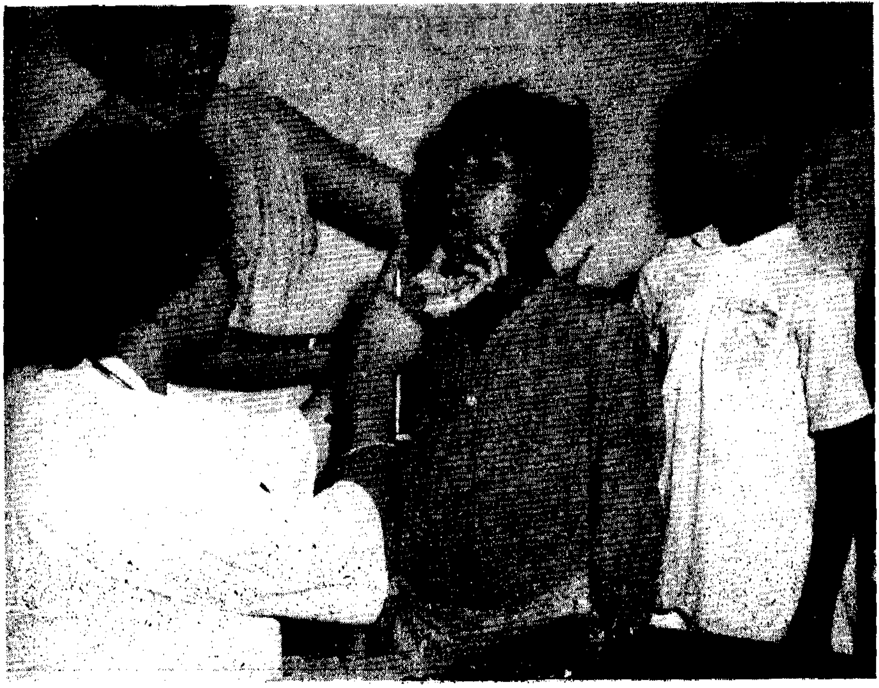


Health examination of the child in progress

Examination of the ear

Testing the vision of pupils

Dental examination of students



carrying pupils concerned to the nearest hospital where such specialised facilities exist. It will be the joint responsibility of the parent, teacher and the medical staff of the health centre to ensure that the pupil suffering from the defect undergoes appropriate treatment either at the centre itself or in the nearby hospital as the case may be.

(*iv*) Beds should be reserved in the hospitals for accommodating the pupils referred for treatment by establishing additional wards for children. Special arrangements may also be made in the out-patients' department for the treatment of these children. The over-crowding in hospitals and the fact that no special provision is being made for attention to children are largely responsible for the present unsatisfactory situation with regard to the follow-up of school medical inspection.

(*v*) In certain States, like West Bengal, an attempt is being made to organise the system of periodic visits to health units by a team of specialists. Such a system has its advantages and, where facilities permit, the possibility of adopting such an arrangement may be explored.

(*vi*) It will be the responsibility of the teacher and the auxiliary nurse-midwife to maintain follow-up of the children who have received treatment in hospitals and primary health units.

Control of Communicable Disease

13. The incidence of communicable diseases such as Malaria, Filaria, Tuberculosis, Leprosy, Dysentery, Typhoid, Cholera, Hookworm, Diphtheria and Smallpox, has been fairly high in our country. Some of these are very common among school-age population. The control of these diseases has received a high priority during the Second and Third Plans. We are glad to note that annual incidence of Malaria in the country has gone down from 75 million to 10 million cases during the decade 1951-61 due to the National Malaria Eradication Programme. It is now contemplated to eradicate smallpox from the country during the Third Plan period. Similar intensive efforts should be made to control and eradicate other communicable diseases particularly Diphtheria and Poliomyelitis. The B.C.G. vaccination programme for the prevention of T.B. should be intensified.

14. The control of communicable diseases remains one of the primary problems with which the school authorities are faced. The spread of infection is a problem which exists wherever groups of children congregate. We firmly believe that the administration of communicable disease programmes should be the responsibility of the public health authorities and that the school authorities should seek the guidance of the public health officer in this regard. In schools, care should, however, be taken to detect promptly, and to isolate cases of communicable diseases. We feel that it should not be difficult for the teacher, if he is properly trained, to spot out cases of students suffering from common communicable diseases.

Immunisation

15. Periodical immunisation is an effective measure to protect against many communicable diseases. Most countries have made immunisation

against Diphtheria, Polio and Smallpox compulsory (*see appendix in Part II*). The following immunization schedules* were accepted by the participants in the technical discussions at the Thirteenth World Health Assembly as being suitable for areas with adequate and for areas with inadequate medical services, respectively.

For Areas with Adequate Medical Services

Age	*Proposed Schedule*
2—6 months	Diphtheria-pertussis-tetanus triple vaccine: 3 doses with 1 month's interval between each dose.
6—7 months	Smallpox vaccination.
7—10 months	Poliomyelitis vaccine (inactivated): 2 doses with a month's interval.
15—18 months	Booster dose of triple vaccine; simultaneously, third dose of polimoyelitis vaccine.
2—4 years	Fourth dose of poliomyelitis vaccine.
5—6 years	Booster dose of diphtheria-tetanus vaccine simultaneously, smallpox revaccination.
10—15 years	Booster dose of diphtheria-tetanus vaccine if Schick test positive; no injection of diphtheria prophylactic in Schick pseudo-reactors. BCG vaccination (in tuberculin-negative reactors).

For Areas with Inadequate Medical Services

Age	*Proposed Schedule*	*Visit*
0—4 weeks	(1) BCG vaccination.	1st
3—9 months	(2) Smallpox vaccination	2nd & 3rd
	(3) Diphtheria-pertussis-tetanus (triple vaccine with alum): 2 doses at an interval of one month. The first injection could be given at the time of smallpox vaccination. Smallpox vaccination is verified at the second visit. Failures of smallpox vaccination are revaccinated.	
School entry or soon thereafter.	(4) Diphtheria/tetanus booster (plain or with alum).	4th & 5th
	(5) TAB vaccination (where necessary): 2 doses at an interval of one month.	
	(6) Smallpox revaccination: at the time of second TAB injection.	
10—14 years	(7) BCG revaccination (in tuberculin-negative reactors).	6th & 7th
	(8) Smallpox revaccination.	
	(9) TAB booster.	

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*Source: WHO CHRONICLE Vol. 15, No. 8, August 1961.

16. Diseases like smallpox, diphtheria, whooping cough, tetanus, and typhoid, cholera and T.B. are preventable if steps are taken for immunization regularly against these diseases at appropriate stages. We, however, feel that emphasis should be laid on compulsory primary or re-vaccination against smallpox immediately. These vaccinations must be carried out before the entrance of children to the schools and at intervals of 3-4 years. We recommend that immunization against diphtheria, whooping cough and tetanus (D.P.T.) should be made compulsory in the immediate future. Steps should be taken to manufacture the vaccine in India so that it may be supplied free. We have observed that in certain areas of the country incidence of polio is being reported. The Government should consider institutions of immunization programme against it in such areas as early as possible. During epidemics, it should be the responsibility of the school health service to ensure that appropriate preventive inoculations are undertaken in the schools. In areas where epidemics have been known to recur with regular periodicity, it would be necessary to undertake such preventive measures as a routine to cover the dangerous periods.

16(a). *Mental Health*—The health of the child is bound up with its emotional and social well-being. Today, the rapid strides in industrialisation that our country is making and the urbanisation going on alround have affected the family pattern and its value system resulting in an atmosphere conducive to social disorganisation and maladjustment. Juvenile delinquency and maladjustment among children is becoming a problem, especially in urban areas of the country.

16(b). We recognise that the causes of juvenile delinquency are many and require organised and concerted effort on the part of the family, the community, the educational and social organisations and the Government. Next to home, the school is of the most strategic importance in preventing maladjustment and promoting mental health of the child. The class teacher plays the key role in this. We recommend that the curriculum should be broad-based and flexible with a large variety of co-curricular activity suiting individual needs and interests. Besides the desirability of having a sympathetic and understanding teacher, there should be a co-operative atmosphere in the class-room and the school environment offering emotional security to the child so that its personality in toto may develop. We also feel that effective co-operation between the teacher and the parent is of utmost importance and so measures should be taken to form and promote parent-teacher associations.

16(c). There are very few facilities, like student counselling in schools or child guidance clinics. We are aware that under the existing conditions, it may not be possible to have such facilities in all the schools of the country. However, we recommend that child counselling units in schools and child guidance clinics in the local health departments be established to start with in metropolitan cities where technical personnel and resources may be easily available for providing such services.

School Health Through Primary Health Units

17. The primary health units are being established for providing an integral preventive and curative medical service in rural areas of the country. By the end of the Third Plan period, there would be one primary health unit in each of the 5,000 Community Development blocks to be set up in the country. At present, in most of the States, excepting

West Bengal where the position is better, the staff of the primary health unit consists of :

One medical officer,
One health visitor,
Four auxiliary nurse-midwives or midwives,
One sanitary inspector and ancillary staff.

The main services that are supposed to be provided to the community by the above team are as follows :

(*a*) medical care;
(*b*) maternal and child health services, *including* school health;
(*c*) health education;
(*d*) control of communicable diseases;
(*e*) sanitation of the environment;
(*f*) collection of vital statistics; and
(*g*) family planning.

18. Experience from the inception of Primary Health units till today, however, clearly shows that as now established they are making no significant impact on school health. Even the skeleton staff now provided is not often in a position to carry out even the basic services as mentioned above. The Panel on Health Programmes constituted by the Planning Commission recommended in 1955 and reiterated in 1961 the following minimum staff for the effective functioning of the primray health units.

(*a*) 2 doctors
(*b*) 2 health visitors }
(*c*) 3 nurses } 5
(*d*) 4 midwives
(*e*) 1 social worker
(*f*) 3 sanitarians
(*g*) 1 compounder
(*h*) ancillary staff.

19. At present, a primary health centre serves a population of about 66,000 which will increase by 1966. The number of children between the ages of 6 and 11 years in the area covered by a primary health centre is, at present, roughly 6,000. It is not possible for the present staff of a primary health unit to undertake, in addition to community health programmes, a comprehensive school health service programme also. We, therefore, feel that for carrying out this programme through primary health units it will be necessary to increase the staff by at least one additional medical officer and four auxiliary nurse-midwives. The effort should, however, be made to increase the staff as recommended by the Health Panel of the Planning Commission. The ideal medical officer-population ratio for a comprehensive health programme, including school health programme, would be 1 : 10,000 but we realise that in the present circumstances, it will not be possible to achieve this ideal in the immediate future.

Shortage of Doctors in Rural Areas and Measures for Combating

20. There were 2800 primary health units in the country by the end of Second Plân period. In our interim proposal we have suggested that for the proper functioning of this programme it will be necessary to have 2 doctors per unit. In our recommendations therein we had suggested that until such time the doctors were available an auxiliary nurse-midwife may be added to each health centre and the work carried out accordingly.

There is actually no shortage of doctors in the country, as we had 70,000 doctors in practice or in service by the end of Second Plan period. There is therefore, mal-distribution of doctors with the result that while the doctor-population ratio is 1 : 2,000 in urban areas, it is 1 : 40,000 in rural areas.

21. In our interim report, we have mentioned that the following incentives may be offered with a view to attract medical personnel to work in rural areas :

(*i*) Better salary scale for medical officers working in rural areas.

(*ii*) Facilities for housing and reasonable amenities.

(*iii*) Suitable arrangements for the schooling of children of these officers and the payment of additional allowances for this purpose.

(*iv*) More attractive leave and travel facilities.

(*v*) Facilities for periodical refresher courses in teaching institutions and provision for the distribution of technical literature.

(*vi*) Recognition of the work carried out in the rural areas in the shape of advance increments and institution of a system by which after a term in the rural service the officers will be entitled for posting in urban institutions.

(*vii*) Provision of proper transport facilities to enable the officers to discharge their duties satisfactorily.

We are glad to note that the Third Five Year Plan has also suggested certain measures with a view to create necessary climate and conditions for securing personnel for rural areas.

22. We feel that if the above measures are taken earnestly the problem can be solved to a large extent. Steps should also be taken to open referral hospitals so that the cases requiring specialists' care can be referred there by the doctors working in primary health units. We are glad to learn that West Bengal has been able to appoint two doctors in each primary health unit established in the State. We see no reason, therefore, why the other States should not be able to recruit the minimum staff as proposed by us for their primary health units by giving incentives or by implementing the above measures earnestly. The proposal that medical students should serve for 6—12 months in the rural areas before they get their degrees, will help to meet the shortage of doctors in our country. We commend this.

Co-operation of Private Practitioners

23. The possibility of enlisting the co-operation of private practitioners to carry out medical inspection of school children on a part-time basis has

been suggested. Where adequate number of private practitioners are forthcoming for such service, such a scheme may perhaps be possible. It must be remembered, however, that apart from medical inspection, the school health service includes the follow-up of children and other items mentioned above. How far private practitioners, recruited on a part-time basis, can fulfil the objectives of a health programme is a moot question. Moreover, in urban areas where there is a large surplus of private practitioners, we have Government hospitals and dispensaries. The cooperation of private practitioners is, therefore, to be sought for in rural areas where Government doctors are scarce.

Role of Auxiliary Nurse-Midwife

24. In view of the rapid expansion in the provision of health services in the country, large numbers of auxiliary nurse-midwives are needed. We have noted that although since the beginning of the First Plan, steps have been taken to expand training facilities for such categories of personnel, shortages have continued to be acute. The auxiliary nurse-midwives have to go through a two-year course of training only. It should not, therefore, be difficult to expand and create new facilities for the training of a larger number of auxiliary nurse-midwives during the Third Plan period. Incentives as mentioned above in the case of doctors should also be provided for such personnel, so as to attract them to work in rural areas. We feel that if local candidates are selected for training and are later employed in their own areas, without being moved into distant places, many candidates would become available for such type of training.

Place of Teacher in School Health Services

25. The teacher plays an important role in influencing the child and the whole community in matters of health. He, in his daily contacts with his pupils, has opportunities to notice early changes in their health and vivacity. Teachers can make good use of opportunities for health education when they teach in a school environment which itself is healthful, relate health teaching to the needs and interests of children and utilize the help of available health resources. We feel that although health services are carried out by health personnel, the teacher has an important part to play. We agree with the following views expressed in the report of the Expert Committee of the WHO on School Health Services :

> "The role ...... for the teacher is obviously important and fundamental in any health service. In areas with extremely limited health facilities, the teacher may be one of the few persons in the community, besides the parents, interested in the child's health. While a programme which depends on the teacher to carry the whole burden cannot be as productive as one with a nurse and physician, there is obviously much that can be done. Conversely, in a highly developed service the role of the teacher, while no longer unique, is still as important to the child's welfare as ever, and there is no substitute for the knowledge gained from the teacher's continued classroom observation."

With adequate training in health education and school health service it should be possible for the teacher to undertake the following functions

Recording the weight of children

Measuring the height of school children

Doctor takes chest measurement of a boy

connected with school health services of children with the help of health staff :

(*i*) Daily observation of children with a view to spot any deviation from normal health;
(*ii*) Recording a height and weight, and simple testing of vision;
(*iii*) Maintaining of health record of the child including family history;
(*iv*) Assisting the doctor in the course of the medical examination of the children;
(*v*) Bringing to the notice of parents the defects with a view to ensure that the recommended remedial measures are adopted; and
(*vi*) Giving first-aid.

We feel that as in the case of medical officers, unless proper incentives and reasonable emoluments are given, it will be impossible to enthuse the teachers to participate in this programme effectively.

School Health Work in Urban Areas

26. As mentioned earlier, the majority of doctors in our country are concentrated in the urban areas. The development of a school health service can, therefore, be carried out more easily in the larger urban centres. Apart from higher proportion of medical men, the concentration of school population within narrower limits in towns and cities, the better facilities for transport and for treatment and the existence of public health organisation are other advantages which can be fully utilised in developing school health work in urban areas. We have reason to believe that the health of children suffers much more in slums and congested areas in towns and cities due to the over-crowding and other insanitary conditions than elsewhere. We cannot, therefore, afford to neglect the children in cities. It is suggested, therefore, that the children of the urban areas should also be provided school health facilities. These children may get the benefit of attention from the hospitals. In case where defects are noted and medical treatment is required, the children may be taken in groups by the teachers or the school medical officer to the hospitals concerned on one or two afternoons in the week, when the staff can look after them. Children who require more frequent visits may be advised to attend such afternoon services.

Proposed Programme

27. The Joint Committee of the Central Advisory Boards of Education and Health have pointed out the sad fact that the State (the then Provincial) Governments had given up the school medical inspection schemes started by them after a very short time. We are, therefore, particular that if such a situation is to be avoided, a well-chalked-out scheme, capable of producing results, has to be recommended. In our interim report, we have recommended that at least 25 million children of the age-group 6—11 out of 40 million children in this age-group in the rural areas should be covered by the end of the Third Plan period. The total number of children in this age-group in 50 million including in urban areas. We feel that considering the importance of the programme in the country, this target must be considered a modest one.

28. We have since then, however, taken note of several practical difficulties in the matter of attaining this target within the specified period. Firstly, the Third Plan has not laid adequate emphasis on the training of medical and auxiliary personnel with the result that the shortage of these personnel may persist by the end of Third Plan period also. Secondly, we regret to note that no significant provision has been made in the Third Five Year Plan by the Centre or the State Governments for the expansion of school health services in the country. In view of these practical difficulties we are constrained to suggest two stages in order to provide school health services even to the children of age-group 6—11.

29. We recommend two stages. During the first stage, we recommend a scheme of a limited nature which would embrace only a limited section of the school population even in the age-group 6—11. In making this recommendation, we have kept in view two considerations : (1) the medical officer in-charge of the primary health unit has multifarious duties to perform and it will not be possible for him to devote more than a limited time to the development of school health services; and (2) the teachers who have to carry out certain health duties would require training before they can take up such work.

First Stage (1962-66)

30. (*i*) *Rural areas.*—School health services should be developed in an area close to the primary health unit. Roughly 40 villages or 40 primary schools with a total of about 2,000 students on roll may be covered.

The existing staff in a primary health unit may be strengthened by one auxiliary nurse-midwife. Each of the five auxiliary nurse-midwives may assist the medical officer along with the teacher in the work of school health services in 8 schools.

The programme may be phased over the Third Plan period. During 1962-63, school health services may be provided in 1,000 primary health centres. The coverage should be increased gradually so that by 1965-66, all the 5,000 primary health units are strengthened. The total number of students which would thus be provided with school health services would roughly be 100 lakhs in about 2,00,000 schools or villages.

(*ii*) *District Project.*—We recommend that side by side, one district may be selected in each State and school health services provided to all the children in the age-group 6—11. After every year the project may be extended to another district also so that by the end of the Third Plan period the school health services may be provided in four districts in each State. The district selected should be such where all the medical facilities are available and preferably where teaching hospitals and teachers' training institutions are located. The project would give an idea of the cost of providing school health services in the entire State and would also clear up the administrative or organisational or implementation difficulties.

(*iii*) *Corporations.*—School health services may be taken up in all schools in cities which have Corporations and municipalities. While the minimum coverage should be all the children in the age-group 6—11, efforts should be made wherever facilities are available, to provide school health facilities in middle and secondary schools also. In any case, all the children studying in schools located in slum areas of the cities and towns must be covered.

Cost of the Programme

The following expenditure is envisaged per primary health unit:

(*a*) *Recurring:*

	Rs.
One Auxiliary Nurse-Midwife @ Rs. 120 p.m.	1,440
One Attendant @ Rs. 75 p.m.	900
Forms, cards, stationery, contingency, etc.	160
Drugs and diet supplements	250
TOTAL (R) ..	2,750

(*b*) *Non-recurring*:

First-aid kits @ Rs. 25 per kit—40 kits	1,000
Equipment, furniture, etc.	300
TOTAL (NR) ..	1,300
Total (R) plus (N.R.) ..	4,050

The total expenditure is estimated to be about Rs. 4 crores during the Third Plan period. The year-wise expenditure would be as follows :

	Rupees in lakhs
1962-63	40·50
1963-64	68·00
1964-65	136·00
1965-66	150·50
TOTAL ..	395·00

Coverage : The total number of children covered in the first stage would be as follows :

	No. of children covered in the age-group 6—11 (in million)
Rural areas	10·00
District projects	8·8
Corporations	3·2
	22·0

or 44% of the total children in the age-group 6—11

Second Stage (1966-71)

31. *Rural areas.*—During this period, the school health services should be extended to all the primary school children in the community development blocks.

One medical officer and three auxiliary nurse-midwives may further be added to the staff of the primary health unit. The two medical officers and eight auxiliary nurse-midwives may distribute among themselves the work of school health services in about 100 primary schools functioning in a block.

During the first year, 1,000 primary health units may be expanded and in five years, all the 5,000 primary health units may be strengthened. Efforts should also be made to provide school health facilities during this period, wherever facilities exist, to children of the middle and high schools. The help of the referral and district hospitals set up in taluq headquarters and of the private practitioners may also be sought.

Urban areas.—The school health services should be extended to the entire urban areas. The children of the ages 6—14 should have the priority. The scheme may be extended to the children of high schools, if resources permit.

The above is the general approach we have recommended for the gradual development of school health services in the country.

Cost of the Programme

The following expenditure is envisaged per primary health unit :

(*a*) *Recurring*:

	Rs.
One Medical Officer of Health (School Health @ Rs. 300 p.m.)	3,600
Three Auxiliary Nurse-Midwives @ Rs. 120 per month ..	4,320
One Attender @ Rs. 75 p.m.	900
Forms, cards, stationery, postage, contingency, etc. ..	800
Additional drugs, diet supplements, etc.	760
TOTAL (R) ..	Rs. 10,380

(*b*) *Non-recurring:*

Equipment, furniture, etc.	500
First-aid kits for schools @ Rs. 25 per kit for 100 schools ..	2,500
TOTAL (N.R.) ..	Rs. 3,000
TOTAL (R) plus (N.R.) ..	Rs. 13,380

The total cost of the scheme during the five-year period would be roughly Rs. 14 crores. The year-wise expenditure would be as follows :

	Rupees in lakhs
First year	133·80
Second year	103·80
Third year	237·60
Fourth year	341·40
Fifth year	579·00
TOTAL	1,395·60

Financing of the Scheme

32. It has been brought to our notice that at present the expenditure on the primary health units is shared by the Ministry of Health and Ministry of Community Development at the Centre and by the States. The recurring expenditure which includes the expenditure on staff, maintenance of vehicles, equipment and drugs is shared equally (50 per cent) by the Ministry of Community Development and the State Government. The non-recurring expenditure, *i.e.*, Rs. 52,500 for each primary health unit is borne by the Ministry of Health. The expenditure on the scheme proposed by us will mostly relate to the recurring expenditure. We feel that the existing pattern of Central assistance may continue and the ceiling of total recurring expenditure may be increased by the expenditure recommended by us.

The total expenditure on the scheme recommended by us constitutes a very negligible percentage of the total plan provision of the Ministry of Health and the Ministry of Community Development or the State Governments. We, therefore, feel that it should not be difficult for the concerned Ministries to share the burden by internal adjustments of the Plan provision on various programmes within the ceilings allotted to them for the Third Plan period.

CHAPTER IV

SCHOOL MEAL PROGRAMME—APPRAISAL OF EXISTING SITUATION—PURPOSE AND SCOPE

> *"If you are planning for a year, plant grain; if you are planning for ten years, plant trees; if you are planning for hundred years, plant men."*

Introduction

There has been a steady improvement in the health of the people of our country. During the decade 1951-61, the expectation of life at birth has increased by about 10 years. The infant and child mortality rates, however, still continue to be high. About 44 per cent of the total deaths occur below age 9, although this age-group counts for about 30 per cent of the total population. No doubt, most of this high mortality is due to the abnormal infant deaths, but heavy child mortality contributes to it considerably. The peculiar risks from a host of infectious diseases to which children are exposed are not over by the age of 5. The struggle between the innate vitality of the child and the environmental enemies continues till later. Consequently, even among those who survive, the vitality of a very large number of children is sapped.

Nutritional Problems of the Children

2. Malnutrition occupies a very prominent position in the causation of high child mortality in the country. Specific food deficiency diseases are in themselves a serious public health problem. Periodic medical examinations of school children in some States of our country have shown that a large percentage of children are in a poor state of nutrition with consequent impairment of physical and mental growth. Specific nutritional and dietary diseases occur over large areas in the country. Most illness does not result in death, but disability as an outcome of diseases has a deliterious impact on the society. Poor physique lowers the efficiency and productive capacity of the nation.

3. Better food means better health. A large number of diet surveys were carried out in the country through the Indian Council of Medical Research from 1935 to 1948. The conclusions drawn from the results of these surveys are :

> "The average diet of an Indian is lopsided primarily because of its extremely high cereal content. The other noticeable feature is that the diet lacks in adequate amounts of protective foods leading to inadequacy and very often to total lack of protein of good quality. Inadequacy of minerals and most of the important vitamins in more or less varying degrees is the other important feature. It has not been sufficiently realised that the inadequacy of 'B' group of vitamins is of the most serious import in view of the large intake of carbohydrates. Intake of vitamins A & C also is often inadequate."

These surveys have led to the following observations :

> "It appears that two-thirds of the families did not consume any fruit and nuts at all. About one-third of the families did not consume sugar and jaggery or meat, fish or flesh foods, and a quarter of the family groups did not consume milk and milk products or leafy vegetables. Again, amongst the groups of families consuming particular foodstuffs the intake of leafy vegetables, other vegetables, ghee and vegetable oil and pulses was below the desired or recommended level. Only in about one-fifth of the groups of families surveyed was the intake of pulses and other vegetables up to the recommended level. Though any generalisation on the data presented is not desirable for reasons more than one, yet it may be stated that in about four-fifths of the families surveyed the intake of protective foods was either nil or below standard."

Surveys carried out during the period 1954-58 also show similar results.

4. Both undernutrition and malnutrition thus exist widely in our country. In children particularly, cases of deficiency of protein, vitamin 'A' and vitamin 'B' Complex, growth failure, anaemia and caries of the teeth are too numerous to mention. It is, therefore, no wonder that the children in our country are prone to diseases and to high mortality. The common dietary fault among school children is that many of them, particularly in rural areas, come to school in the morning without breakfast. Among the several reasons responsible for this are the poor economic condition of parents and lack of appreciation or ignorance of balanced diets.

Earlier Emphasis on the School Meal Programmes

5. In our country, the importance of the school meal programme has been felt for a long time. The Sargeant Report on Educational Development has observed that provision of a mid-day meal in school is recognised to be a good thing both for combating malnutrition and for enabling the children to benefit by the lessons imparted. Various organisations pioneering in the field in the country have stressed the need for it and have provided meals in a few schools. A school meal scheme for children was inaugurated by Madras Corporation, as early as 1925, on a modest scale among children. The Joint Committee of the Central Advisory Board of Health and Education pointed out that :

> "In many parts of India, it is the custom for children to have a meal before they leave for school and have no more food until they return home in the late afternoon. Such children cannot be expected to have the necessary energy to devote themselves to their school tasks.
>
> It is essential, both from the point of view of education and of health, that all the children should be given a mid-day meal, whether it is brought by the children from their homes or provided at the school by the authorities."

6. In 1943, the United Nations Conference on Food and Agriculture held at Hot Springs, Virginia stressed the importance of improving the

nutrition of vulnerable groups of population, especially children of school-going age. Later in 1947, the F.A.O. at its meeting in Geneva, recommended :

> "Even in countries in which food supplies are short, school feeding should be pushed forward by giving it a high priority among the measures of safeguarding and improving the nutrition of children."

The first Regional Nutrition Committee in South and East Asia, which met in Baguio, the Philippines in 1948 recommended a type of meal which could be supplied to school children in the region. This meal pattern emphasised the use of cheap, locally available foods that would provide the chidren with all essential nutrients. On the recommendations of the Fourth FAO/WHO Regional Nutrition Committee, which met in Tokyo in 1956, a Seminar was convened for Asia and Far East by FAO/UNICEF in November, 1958 on school feeding. The Seminar in the light of the discussion recommended that :

(*i*) More and better information on actual nutrition conditions among children should be obtained through surveys of nutritional status and food consumption carried out by qualified personnel. Such surveys should be planned on a statistically sound basis.

(*ii*) Where a national nutrition institute or other public health nutrition service is already established, education and health authorities should arrange for appropriate personnel associated with the school nutrition programme, in particular school health doctors, to participate in any training courses or informal teaching opportunities provided by them, especially those concerned with the early diagnosis of nutritional deficiency diseases and nutrition survey techniques.

(*iii*) In countries where a national nutrition institute or other public health nutrition service does not exist, the possibility of establishing such should be explored not only in the interest of school nutrition programme but also for the overall benefit of the nutrition of the people.

(*iv*) Ministries of Health and Education in co-operation with National Nutrition Institutes should prepare :

  (*a*) guidelines or forms for clinical examinations of the State of nutrition of children for the use of school health physicians; and

  (*b*) guidelines, or forms, appropriate for other categories of workers such as nutritionists, teachers, nurses and social workers, who can assist in collecting information on nutrition conditions. These guidelines should, in the first instance, be prepared for trial use on a limited scale. Where needed, assistance may be sought from FAO and WHO.

(*v*) Countries should organise in-service training courses for personnel associated with school nutrition programme. Where needed, assistance for such training should be provided by FAO and WHO in co-operation with UNICEF.

Purpose and Scope of School Meal Programme

7. Intensive measures are required to be taken for combating malnutrition by organising supplementary feeding programmes for pre-school and school children. Access to this important group of school-age population is far easier than any other group specially when children between ages 6—11 will be in schools under the compulsory primary education programme. To contact the children in this age-group and to correct such nutritional disorders as may be present through administration of medicaments and supplementary foods is not an impossible task, if serious efforts are made. It is in the interest of the country at large that its population that have survived the hazards of the first five years of life be supplied with sufficient nourishment to grow up into a vigorous adulthood. We strongly feel that all children who go to school should be assured of atleast one nourishing meal. An important item of the school health programme, therefore, should be the school meal programme.

8. The primary aim of the school meal programme should be to improve health and encourage sound dietary habits. Regarding the purpose and scope of school meal programme, one can do no better than to reproduce the conclusions drawn at the FAO/UNICEF Regional School Feeding Seminar for Asia and the Far East held at Tokyo, Japan, from 10th to 19th November, 1958 :

(*i*) The school has an important role to play in promoting the intellectual, physical and emotional development of the child. School feeding and its related educational activities can help to improve health, to encourage better diet habits and to contribute to the well-rounded development of the child. School feeding should be available to all children, beginning in the primary grades and extending to higher grades as resources permit.

(*ii*) School feeding should not be developed as an isolated service for school children. It should be integrated with school curriculum as a whole and should form an important part of the school health programme. The utmost importance should be laid on associating a school feeding programme with education in nutrition and other measures to improve diets. Such a programme must extend beyond the schools since improvement in diet requires a co-operative effort on the part of the school, the home and the community.

(*iii*) In this region generally, soil and water contamination are major problems affecting health and nutritional well-being. A school feeding programme cannot be of much value unless simultaneous efforts are made to improve environmental sanitation and personal hygiene and to reduce the incidence of intestinal parasitism and diarrhoeal disease.

(*iv*) In planning a school feeding programme, account should be taken of the total diet of the child. The feeding programme should be designed to supplement the important nutrients deficient in the home diet, so that the food he receives at school and at home will provide him with a nutritionally satisfactory diet.

(*v*) Financial and other considerations may, in most countries, preclude the provision of a complete meal. A simple supplement to the basic home diet can, however, form a locus for educational activities to encourage better habit of diet, which is the ultimate aim of school feeding.

(*vi*) A school feeding programme should be supervised at the national level and, if possible, at the district and local levels by workers suitably qualified in nutrition.

Effect of School Meal Programme on the Health of the Child

9. We realise that it it is difficult to differentiate between the effects of school meal *per se* and other community health programmes which also affect the health and development of the child. A few experiments have, however, been carried out with a view to measure the extent to which a school meal programme may benefit the health of the children. In the Poonamalle Health Unit (Madras), supplementary feeding with different food supplements was arranged among 550 school children. For the purpose of an experimental study, the recipients were classified into five groups. Children in four groups received supplementary foods while in the fifth, which was taken as a control, no supplementary food was given. The above study, though limited in scope, revealed that the under-nutrition prevailing in the low economic groups among the school children can be combated through supplementary feeding.

10. Another investigation was carried out by the Nutrition Department of the All-India Institute of Hygiene and Public Health, Calcutta, on about 1,000 school-going children in three different schools in Calcutta. The result of this investigation yielded interesting data. The students who received the supplementary feeding were observed to have a more rapid increase in body weight than the children who were kept as a control. There was also a significant improvement in the nutritional status in the form of a reduction in the incidence of nutritional deficiencies as a result of these nutrient supplementation for as short a period as three months. Similar surveys carried out elsewhere have corroborated the view that the school meal programme does improve health of the children and encourage sound dietary habits among them.

Educational Value of School Meal Programme

11. The school meal programmes play an important role in the nutrition education of children. In many advanced countries, these have become an integral part of school health programme. By getting a nutritive but inexpensive meal in the school, children have an opportunity to appreciate the importance of balanced diet for the maintenance of their health. The school meals inculcate in children proper dietary habits and may help them in overcoming prejudices about certain diets. The classroom lessons and activities can be correlated with the activities connected with the school meal programme specially in the fields of health instruction, home science, social studies, civics, gardening and sciences. The school meals also help children to associate with one another regardless of their caste, creed, social and economic differences. This early experience will facilitate emotional integration.

12. While compulsory primary education is being introduced through legislative measures, our past experience shows that social legislation takes

Cheap, nutritious school meals planned by a group of primary school teachers time before it becomes operative on a wide scale. Compulsory education is not likely to be operative, particularly in the remote rural areas. The school meal will be an attraction to the parents of lower economic-groups, particularly in rural areas, who utilise the services of their children to augment their family income. It will thus ensure the success of the compulsory educational programme.

School Meal Programme in Our Country

13. Introducing the Third Five Year Plan in the Lok Sabha, the Prime Minister said :·

> "I should like to mention one aspect of it which is gradually being introduced and which is referred to in our Plan, that is, the introduction of mid-day meals. The State of Madras stands foremost in this, and I should like to congratulate it on the great success of its mid-day meal movement. But I hope that other States will follow this. In fact, many others are thinking in terms of doing the same thing."

The mid-day meal scheme was inaugurated in 1925 on a modest scale in the City of Madras by the Madras Corporation. The scheme made a rapid progress and the number of meals has increased from 3,000 in 1929 to about 35,000 meals in 1961. The meal is prepared in various centres early in the morning and is transported to the various schools in vans by 12 noon. Separate containers of suitable sizes are utilised for this purpose. One set carries the meal to the school and the other set, left in the school the previous day, is carried back to the centre for use the next day. The diet articles including vegetables are purchased by contract system on the basis of tenders. The tenders are disposed of by the Standing Committees (Health) and (Taxation and Finance) on the basis of the recommendation of the Health Officer and the Commissioner. A Supervisor is in charge of each of the Centres and he places indents for the diet requirement for each centre with the contractor concerned and receives them after satisfying himself as to their quality and quantity. He is responsible for maintaining proper accounts for the receipts of the articles and their issues. The vessels for the preparation of meals are periodically tinned. Steps are taken to maintain cleanliness and hygiene in the preparation, storage and distribution of meals. A tools and plants register is maintained in each centre. The Assitsant Health Officers inspect each centre periodically to ensure that the diet articles supplied are of the proper standard and that proper accounts are maintained in each centre. The Supervisor also maintains a detailed chart showing the schools to which meals are supplied from that centre, and the quantity and the number of meals so supplied.

The Commissioner, Corporation of Madras, is in overall control of the scheme. In this work, he is ably assisted by the Health Officer and his assistants. They exercise strict supervision and control at every stage of the scheme. The Supervisors are in immediate charge of the entire scheme. They receive stocks of all raw materials required, look to their conversion into finished products and ensure their eventual receipt by the children. At every stage in this long process their activities are under constant check, observation and assistance by the Health Officer, his Assistants, the Medical Inspectors and the Headmasters and their Assistants.

In every school, a list of pupils supplied with meals is maintained. On the findings and the recommendations of the Medical Inspectors of Schools, taken alongwith the details of their socio-economic conditions as reported by the respective class teachers, children are selected for the benefit of full meals. Generally, the beneficiaries would be of the income-group of below Rs. 50 p.m.

Plates supplied by the Corporation for individual children are used. Food is distributed by the Children themselves under the watchful eye of the teachers who are posted for the purpose by turns. Every possible care is taken to ensure that the food is taken only by the children selected under the scheme and that there is no waste. Each child now receives 12 Oz. cooked rice, 8 Oz. *dal,* vegetables and *sambhar,* totalling 1¼ lb. through a variety of menus. The cost per pupil works out to 9½ nP. or Rs. 19 *per annum* per pupil. The diet supplied by the Madras Corporation has been supplemented by gifts from international organisations. The provision of steam boilers of the type recently installed in the centres of food production are expected to cut down fuel costs appreciably and also to cope with the increased work involved in lesser time.

In addition, Madras has undertaken a novel experiment in enlisting the cooperation of local communities in improving the health of school-going children.

Madras School Improvement Scheme in Rural Areas

The Madras Scheme of Free School Meals to poor children in elementary schools was launched in 1956. It was intended to achieve the double purpose of (i) enrolling poor children who remain outside the school on account of the poverty of their parents and (ii) to give at least one satisfactory meal to poor children who attended the school but remained hungry all through the school day. The scheme started at first unofficially purely as a voluntary people's movement. The poor children in schools were fed entirely through local contributions in cash and kind. Seeing the good results of this voluntary effort, Government stepped in November 1957 with a substantial grant with a view to stabilising the scheme and extending it to schools all over the State. Every Mid-day Meal Centre is administered by the local donors who constitute themselves into a General Committee which in its turn elects an Executive Committee. The President of the Executive Committee is usually an important non-official person of the locality while the Secretary is the Headmaster of the elementary school. The Executive Committee is responsible for the collection, and administration of donations and the maintenance, through the Secretary, of accounts and registers. The Centres are subject to inspection by Inspecting Officers of the Education Department.

The mid-day meal provided under this scheme generally consists of cooked rice serviced with *sambar* or curd and vegetables and pickles. The normal cost of this meal is 10 nP. Towards this, the local donors contribute 4 nP per meal per pupil and the Government 6 nP. Nearly 11 lakh school children in elementary schools are benefiting under the scheme. It is proposed to expand the scheme to cover 17 lakh school children by the end of the Third Five Year Plan.

Donations by the local community have been harnessed not only for providing food for poor children but also for improving the school by meeting its other needs. This scheme goes by the name of the "School Improvement Movement". This is a purely voluntary people's effort to contribute to the improvement of the local schools by constructing buildings and supplying equipment like furniture, cooking vessels, blackboards, books, slates, and other teaching aids. About 22,660 schools have benefited by the scheme to the total extent of about rupees four crores entirely contributed by the public.

Another inducement offered to poor children, especially girls, to go to school, is the free gift of clothes. This again comes out of community donations. About 4 lakh children have so far received gifts of at least one set of clothes at a cost of about 22 lakh rupees.

14. More recently, the States of Kerala and Andhra Pradesh have organised school meal programme with a fairly wider coverage. Excepting these, in other States there is no uniform organised system of school meals. In some of the States, skim milk made available by the UNICEF and other organisations is distributed to school children. In a number of States, the school meal programme is, at present, restricted to certain districts which are generally backward. During 1960-61, the school meal scheme was in operation in about 40,300 schools covering roughly 24.6 lakhs of students all over the country.

School Meal Programme in Foreign Countries

15. Most of the progressive nations, irrespective of political ideologies of their governments, concentrate their efforts in the improvement of health and fitness of their children. The school meal programme had its earliest beginnings in Germany, France and other Continental countries. In most countries, school lunches were organised on the basis of two factors : (i) distance of the home from the school; and (ii) the financial circumstances of the parents.

16. Today, most of the children in U.K. get a glass of milk free in the school and a subsidised lunch consisting of boiled vegetables, salad, meat and pudding, costing a nominal sum. School feeding in U.K. is being operated through the Country Councils and every school has a kitchen and canteen attached to it. The school lunch programme in the United States of America is organised with the help of home economists, and operated according to rules and conditions prevailing in the different States of U.S.A. Where federal support is forthcoming, the lunches served must meet the minimum nutritional requirements prescribed by the Secretary of Agriculture. In France, in the year 1936, the Government enacted that any new schools that might be opened should be attached to a feeding centre. School lunches served are simple and attractive. They provide 1,000 to 1,200 calories, 18 to 20 grams of animal protein, vegetables generally raw in the form of a salad; a simple desert, often fruit; cheese and milk. In Scotland, the recommended diet provides 20 to 25 grams of protein, 30 grams of fat and 1,000 calories for children above 11 years, the calories are reduced to 750 and under 8 years to 650, but no reduction in protein is advised.

17. In Japan, a comprehensive school meal programme covering the entire school-going population is currently in operation. In the Philippines.

in addition to a school meal distribution programme, about 70 per cent of the schools have established lunch counters where children may obtain at low cost recess snacks or a supplement to the packed lunch which they bring from home. In other countries, the principal type of school meal programme is a glass of milk with or without some supplement.

18. The pattern of financial assistance to the schools from the Government varies from country to country. The school meal programme is assisted by the National Government in England and Wales, Northern Ireland, Panama, Scotland and Sweden. In the United States of America, it is through the Federal and State Governments' assistance. The Government finances this programme in Belgium, while in Italy, it is financed locally. In most of the countries, children, whose parents can afford to pay, pay a reasonable amount.

19. School gardens are used as teaching aids in some countries. In Japan, China and Panama, gardens are generally grown where land is available. In Yugoslavia, the children grow hitherto unused foods and learn to prepare them.

CHAPTER V

SCHOOL MEAL PROGRAMME—RECOMMENDATIONS

The Nutritional Requirements of Children

Recent researches have shown that for the normal growth and development of children their diet should contain a certain number of nutrients. Most of these are widely distributed in common foods. Some of them are less commonly available and, therefore, it is necessary to make plans for diets and ensure that they are taken in sufficient quantities. The Indian Council of Medical Research, after many years of research and study, have recommended the following dietary allowances for children :

**Recommended Daily Allowance of Calories and Some Essential Nutrients.*

	Net Calories	Proteins	Fats	Ca. (Calcium)	Fe. (iron)	Vit. A. (I.U.)	Thiamin (Vit. B)	Vit. B 2 Complex	Ascorbic Acid	Vit. D.
		g		g	Mg				Mg	I.U.
Children under 1 year	100/Kg.	3·5/Kg.								
1 to 3 years	900 ..	3·5/Kg.								
3 to 5 years	1200 ..	3·5/Kg.								
5 to 7 years	1400 ..	3·0/Kg.	See Note (1) below	1·0 to 1·5	10 to 30	3000 to 5000	0·5 to 1·5	See Note (2) below	30 to 50 and over	400 to 800
7 to 9 years	1700 ..									
9 to 12 years	2000 ..	2·5/Kg.								
Adolescents										
12 to 15 years	2400									
15 to 21 years	2400	2·0/Kg.								

N.B. : The estimate of the protein requirements of children and adolescents are given in terms of grammes per kilogram of body weight because adequate data about average weight in the various age-groups were not available to the Sub-Committee.

(1) Fats must be included in a balanced diet but there is no exact knowledge at present available of the quantity required; hence no figures have been included in the table. Fats possess the advantage of yielding more than twice the energy obtained from carbohydrates or proteins. It is the general experience of nutrition workers that, even in a temperate climate, there is a tendency towards a higher consumption of fats in winter than in summer. A liberal consumption of fats can be advocated on the ground that some of them act as vehicles of fat-soluble vitamins and thus may provide these nutrients to the body in appreciable quantities.

(2) The human requirements of riboflavin, nicotinic acid and other members of vitamin B2 Complex have not yet been placed on a fully satisfactory basis and hence are not included in the table. These vitamins are, however, essential for human nutrition. A few quantitative estimates of requirements have been made, *e.g.* from 2·2 to 3·3 mg. of riboflavin and 15 to 23 mg. of nicotinic acid for adult men. Future research in India and elsewhere should be directed to placing this problem on a firm scientific basis.

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*Health Bulletin No. 23, page 15.

The Quality and Quantity of the School Meal

2. We are aware of the fact that financial and other considerations in our country preclude the provision of a complete meal even to the children of primary schools. A rational school meal programme must be such as to contribute to the correction of nutritional deficiencies prevalent in children. We have already mentioned that the major types of malnutrition encountered among the children are attributable to the deficiencies of protein, vitamin A & B Complex and Calcium. In addition, there is the evidence of gross caloric under-nutrition. The types of nutritional deficiencies vary from region to region. These regional variations have to be taken into consideration in the planning of menus for the school meal programmes. The school meal should provide approximately one-third of dietary and nutritional requirements of the child. This is the minimum which should be provided although the children of a certain section of the community, such as the economically and socially backward classes, may have to be provided with more quantity. The meal should provide not only sufficient protein elements but also make reasonable allowance for calories. But in the existing circumstances, we may have to make a start with a relatively lower dietary and nutritional standard. It should obviously be based on cheap, nutritious and locally available foods. We have reviewed the programmes taken up so far by different States. Experience indicates that it would be possible to provide school meals of a reasonable nutritional value within the cost of 12 nP. per meal per day.

3. The Regional Nutrition Committee for South-East Asia convened by the FAO at Baguio, Philippines, 1948, has suggested the following general pattern for a cheap school meal in that area :

Composition of Cheap School Meal

Foods	*Quantity*
	(Oz.)
Cereals	2½
Pulses	¼
Fish (rich in calcium)	¼
Leafy vegetables	¼
Oil	½
Salt	⅙

A meal of this kind will provide about 400 calories and will supply the required dietary essentials in substantial amounts.

4. The Regional School Feeding Seminar for Asia and Far East have recommended that the meal should meet the following criteria :

(*i*) They must be of high nutritive value, especially with respect to good quality protein and other nutrients needed to supplement the diet of children;

(*ii*) They must be within the economic means of the country to produce and of consumers to buy;

(*iii*) They must be easy to transport and store;

(*iv*) They must be completely free of toxic or other deleterious substances; and

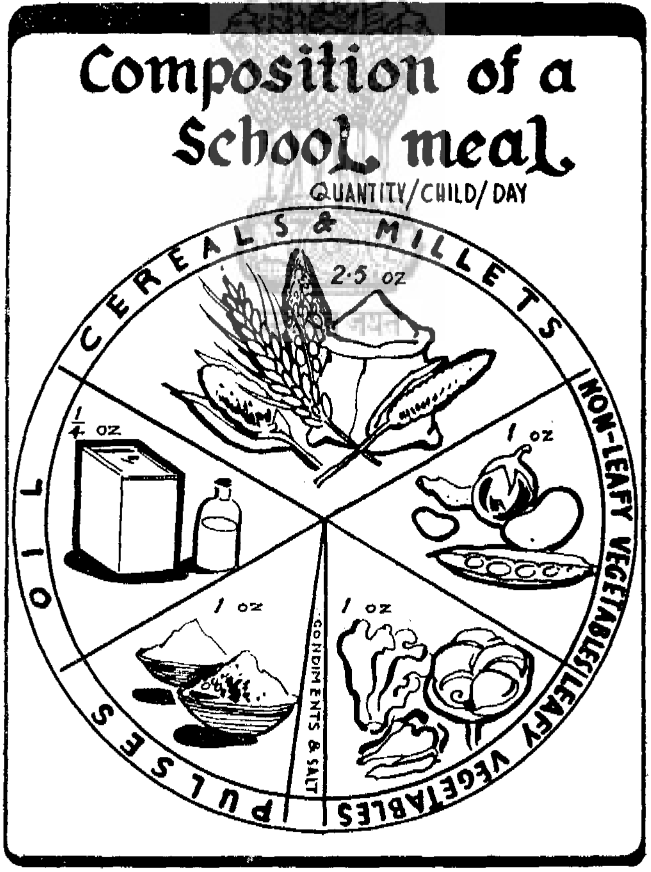
(*v*) They must be acceptable.

We agree to the above criteria recommended by the Seminar. We feel that the main problem in our country is to provide food of a reasonable nutritional value within the low cost permitted by the circumstances.

A Model Menu for Our School Meal

5. In planning school meal programmes, certain background knowledge regarding the food consumption, nutritional status, economic level, local availability of foods and cost of foods, has to be taken into account. In a food-deficient country like ours, the best use of the available, cheap and nutritious foods will have to be made with the help of research. We, therefore, recommend that the main emphasis in the provision of school meal menus must be placed on the natural, locally available, cheap foods.

6. Recently, the Nutrition Research Laboratories of the Indian Council of Medical Research have compiled a series of menus for school meal costing about 12 nP. These menus have been very carefully worked out and can be introduced with advantage in the schools. A model menu for the school meal is shown below. It would cost roughly 10 nP (excluding 2 nP for the preparation of meals and other incidental charges). It would provide roughly of the caloric requirements of the children and would be of adequate nutritional value.



Depending upon the types of foods and varieties of vegetables used, the nutritive value of the above meal works out to be :

Nutritive Value

Calories	419–476
Protein (g)	12.1–18.8
Fat (g)	7.5–11.3
Calcium (mg)	85–353
Phosphorus (mg)	176-363
Iron (mg)	4.6–16.6
Vitamin A. (I.U.)	842–3236
Vitamin B1(mg)	0.18–0.56
Riboflavin (mg)	0.13–0.36
Nicotinic acid (mg)	1.6–5.0
Vitamin C (mg)	15.0–73.0

Note : It is desirable to include a protein-rich supplement such as fish (0.5 ounce) or multipurpose food (0.5 ounce) or skim milk reconstituted (4 oz.) in place of 0.5 ounce of pulses according to the availability of these foods.

Use of Milk in School Meals

7. Milk when given as a supplement to the diet, even in small quantities in the diet of infants and growing children corrects many deficiencies. About 10 oz. of reconstituted milk together with cheap and locally available nutritious snacks consisting of roasted groundnut, jaggery, parched gram, puffed rice, maize or bajra and cheap fruits and vegetables as available in the season can be considered as a moderate type of lunch.

8. The consumption of milk, unfortunately, is very low in our country due to the present unsatisfactory position about the availability of milk. Over the first two Plans, there has been no significant increase in the average *per capita* consumption of milk which is at present 4.9 oz. per day as against the minimum requirements of 10 oz. for a balanced diet. The position is not likely to improve very much in the near future. The total production of milk is at present reckoned at 22 million tons and it is expected to go up to about 25 million tons only by the end of the Third Plan.

9. Steps have been taken during the first two Plans to improve the Dairy industry in our country. We are glad to note that the City of Bombay and the State of Gujarat have registered an appreciable progress in Dairy industry. It is a welcome feature that other States are contemplating to emulate this example. We, however, feel that there is still a great scope in its improvement. The production of milk in our country is very low in relation to the number of cattle we have. There has been a remarkable increase in the milk production in Japan and in some other countries of the world in recent years. In Japan, Dairy production has been increasing at the rate of 20% per year. This increase has been achieved through better use of land, the introduction of better pasture grasses, the importation of suitable dairy cattle and adoption of other scientific dairying practices. In Ceylon, a Milk Board has been created to increase milk production and to ensure safe supplies as well as to assist producers in the marketing of milk. In view of these encouraging developments, we recommend that similar effort should be made in our country also.

10. We realise that whole milk is too costly an article of food to be widely used in our country. Researches of nutrition laboratories have shown that skim milk also possesses considerable food value. We recommend that steps should be taken to expand facilities of providing 'toned' milk in the country, which is generally cheap to the consumer. Such projects are already under operation in some States.

11. As there is a shortage of milk supply at present in the country, we recommend that every effort should be made to ensure that milk produced in the country is made available to the vulnerable segments of population, such as expectant and nursing mothers, infants, pre-school children and school children who need it most. The utilisation of milk in restaurants and for the preparation for sweets for commercial purposes should be discouraged, if necessary, even by legislation enactments. We may recall that in U.K. during the War, the nutritional status of infants and children was maintained at a very high level because of a policy which ensured that the protective foods like milk were reserved for and made available to infants, children, expectant mothers and invalids. We feel that a similar effort is now needed in our country also.

12. At present, various agencies like UNICEF, CARE, National Christian Council and Catholic Relief Services are providing milk powder and milk products for distribution among children in India. The total amount of milk powder received during 1960-61 through UNICEF alone amounted to roughly 11.73 million pounds. The distribution of milk powder is carried out by various organisations. The lack of suitable arrangement for the distribution of milk has led to a lot of wastage in the past. This is particularly unfortunate in a country where most of the children do not have this precious food. Once we have a suitable machinery, it is possible to approach international sources for releasing of extra supplies of skim milk powder in addition to the supply now being made. We have recommended that the milk should first be given to the infants, expectant and nursing mothers and pre-school children. In the chapter on Pre-School Child, we have said how the distribution agency for this purpose should be set up.

13. We realise that the children of 6—11 age-group are vulnerable and require milk for proper growth. While we can give no definite figures there is likelihood of some surplus milk which will be available to school children mainly due to the fact that the majority of pre-school children will not be able to be reached, except where they are available at institutions. This state of affairs will continue for some years. There is a great possibility, therefore, that there will be sufficient surplus milk, if not to be provided for the entire group, at least for the lower age-group of 6—7 years.

Multi-Purpose Food in School Meals

14. A Multi-Purpose Food of very good quality has been produced in the country, on a pilot basis at the Central Food Technological Research Institute, Mysore. It consists of defatted groundnut flour. 1 oz. of 'M.P.F.' yields about 12 grams of proteins and a substantial amount of calcium, vitamin A and riboflavin. Its cost does not exceed 64 nP. per lb., including packing and freight. With adequate mechanisation and increase in production, it may be possible to bring down the cost by about 25%. As the daily amount given to a child does not exceed ½ oz. the cost per

child, according to the estimate given to us, does not exceed 2 nP per day.

15. The Estimates Committee (1958-59) in their 44th report have suggested that in view of its nutritional value, production of multi-purpose food on a commercial basis should start early with international assistance from UNICEF, if necessary. The Committee has further suggested that it may be considered whether it would be possible to develop an industry in public sector to utilise fully the gains of the researches carried out at the Central Food Technological Research Institute, Mysore, specially in regard to certain cheap nutritious foods like Indian Multi-Purpose Food. We recommend that the possibilities of increasing the supplies through installation of a number of production units all over the country should be vigorously pursued. We are glad to note that a Plant has already been set up in Coimbatore (Madras State) which is capable of producing three tons of multi-purpose food per day.

16. For a large majority of children, we have to consider that apart from the nutritional value, the meal should satisfy their hunger. The Multi-Purpose Food for this reason alone cannot be the only food. It can only be useful as a supplement. We, therefore, recommend that the school meal for children may include the Multi-Purpose Food as the supplement food wherever this is available. We understand that the Government of Madras has already decided to use the Multi-Purpose Food in school meals, orphanages and canteens.

Fish and Fish Flour in School Meals

17. Certain recipes prepared with fish flour have been tried successfully in a few schools. The fish flour was made available by the UNICEF. We feel that there is a need to explore the potentialities in respect to fish production in our country. Schools should be encouraged to breed fish, wherever possible, as a source of nutritious food for school meal programmes. If facilities for improved haulage, quick and refrigerated transport and cold storage are provided, a good part of the efficiency of good quality protein might easily be met within a short period of time.

School Gardens

18. There is considerable scope for the exploitation of a large number of hitherto neglected resources of vegetable protein foods. We recommend that, wherever facilities exist, efforts should be made to institute school gardening programmes. These would serve the two-fold purpose of demonstrating the simple agricultural techniques to the children and of increasing and improving local food supplies for school meal programmes. Care should, however, be taken in planning and developing such gardens so that the vegetables or fruits easy to grow, quick to yield fruit, and which have nutritious value are grown. In every basic school, whether junior or senior and wherever land is available, steps should immediately be taken to grow vegetables which can constitute a part of school meal. The above steps should also be taken in the non-basic schools. To give a start to this programme, a few schools may be chosen in each community development block and facilities for gardening should be provided as a part of such schools through the cooperation of agricultural staff, the teachers and the students. The Extension Division of the Agricultural Department can help the schools by giving seeds, implements and provision for fencing. They can provide training facilities

to the personnel and solve technical difficulties concerning the preservation of fruit and vegetables.

Expanded Nutrition Programme

19. We shall like to draw the attention to an important expanded Nutrition Programme which has been recently started in Orissa. The object is to improve the dietary and nutritional status of expectant mothers, pre-school and school children. The project is being administered by the Community Development Project with the help and cooperation of other departments, Panchayats and Voluntary Organizations. The Project includes the following related elements :

(*a*) increased village, school and home production of nutritionally valuable foods such as poultry and eggs, fish, fruit and vegetables;

(*b*) distribution of the supplies produced with the objective of improving the nutritional status of needy pregnant or nursing mothers and young children in the home and in schools;

(*c*) nutrition education through schools, mothers' clubs, community development and extension personnel; and

(*d*) training of various categories of personnel required for the above.

20. Distribution of locally produced food and skim milk and Vitamins A & D capsules will be made through village mothers' clubs to expectant mothers, pre-school children and to the school children through school meal programmes.

We understand that a similar programme is being planned in Andhra Pradesh and Madras. We recommend that such projects should be taken up in other States of the country.

Catering Colleges

20(a). We understand that Food and Agriculture Ministry is planning to set up catering colleges at Bombay, Calcutta and Delhi and catering centres at certain important cities. These colleges will train personnel for catering establishments and prepare different types of foods which are both delicious and nutritious. We welcome the establishment of such catering colleges and centres. The Committee recommends that these institutions should also undertake to prepare meals for being distributed in the schools located in the surrounding areas. They should serve as modern central kitchens for the school meal programme and to popularise the use of inexpensive and nutritious food articles.

Physical Arrangements for the Preparation, Storage and Distribution of Meals

21. It is very necessary that strict hygienic precautions are observed and enforced in the matter of preparation and distribution of meals to children. Otherwise, the very purpose of the programme would be defeated. This emphasises the provision of certain basic amenities in schools. These include, the provision of protected water supply in adequate quantity and sanitary environment for the preparation of meals. Apart from this, arrangement should be made for storage and distribution of food, adequate space for the feeding of children, provision of clean utensils for the distribution of food and adequate facilities for the disposal of garbage. We regret to point out that most of the facilities

mentioned above, do not, at present, exist in most of the schools of the rural areas and in many urban areas of the country.

Water Supply and Sanitation

22. There is a large number of villages which do not have protected water supply. This factor is responsible for many diseases like cholera, typhoid and dysentary. The alleviation of this problem alone would lead to enhanced effectiveness of other activities. We are glad to note that the Third Five Year Plan attaches a high priority to the provision of water supply in villages. With the funds allocated it might be possible to provide water supply in a vast majority of villages during the Third Plan period. We have, however, noted that the programme of rural water supply is being carried out through many agencies without any adequate coordination. Moreover, many States have not carried out any surveys with a view to assess the magnitude of the problem.

23. We recommend that every school should make adequate provision for drinking water. Where water connections do not exist in schools, proper and adequate drinking water should be provided. Earthen pitches properly covered may be utilised for the storage of water. It would be preferable to fix a tap with each earthen pitcher so that the need of putting utensils or hands into the pitcher is avoided. Arrangements should also be made for having these cleaned and filled regularly. Facilities for washing the hands before and after taking the food should also be provided. Steps should also be taken for removal of waste water.

Preparation, Storage and Distribution of Foods

24. Measures should be taken which should aim at facilitating the handling of food from the point of view of efficiency, safety and sanitation. We have noted that in the various school meal schemes, taken up in different States, this important aspect of the problem is neglected. Steps should be taken to improve such facilities. We are glad to note that the Madras Corporation is taking steps to provide utensils and steam cookers for cooking the food hygienically. Similar steps should be taken by State Governments. In rural areas also, hygienic precautions will have to be undertaken. The use of large-sized cookers might help in this regard. Wherever utensils are provided, these should be kept clean. In villages, the use of well-cleaned banana or banyan leaves for serving food can be made. Steps should, however, be taken in such a case for the proper disposal of garbage. The place where the lunch is served should be clean, spacious enough to accommodate the pupils and should have facilities for good ventilation. The kitchen and food preparation centres should be near the place where lunch is served.

Community Contribution

25. With the establishment of Panchayats and Block Samitis in different States, it should be possible to entrust the school meal programme to these organisations. The Panchayats in the villages should be educated with regard to the great importance of the programme and must be encouraged to take full responsibility for its implementation. There are various social welfare organisations which have been pioneers in this field. These are doing very useful work in our country. We attach particular importance to securing the interest and active support of such voluntary

organisations in school meal programmes. A small committee of Panchayats and others may be constituted to administer this scheme. This committee may usefully include the representatives of the local voluntary welfare organisations. It should be the responsibility of such a committee to make the necessary arrangements for the collection of local and other contributions, procurement and storage of foods necessary for the programme and for the preparation and distribution of meals. Within the school also, coordination among the school personnel is necessary. We, however, feel that the burden of raising the community share of the school meal programme at no cost should fall on the teacher whose main responsibility is to educate the children.

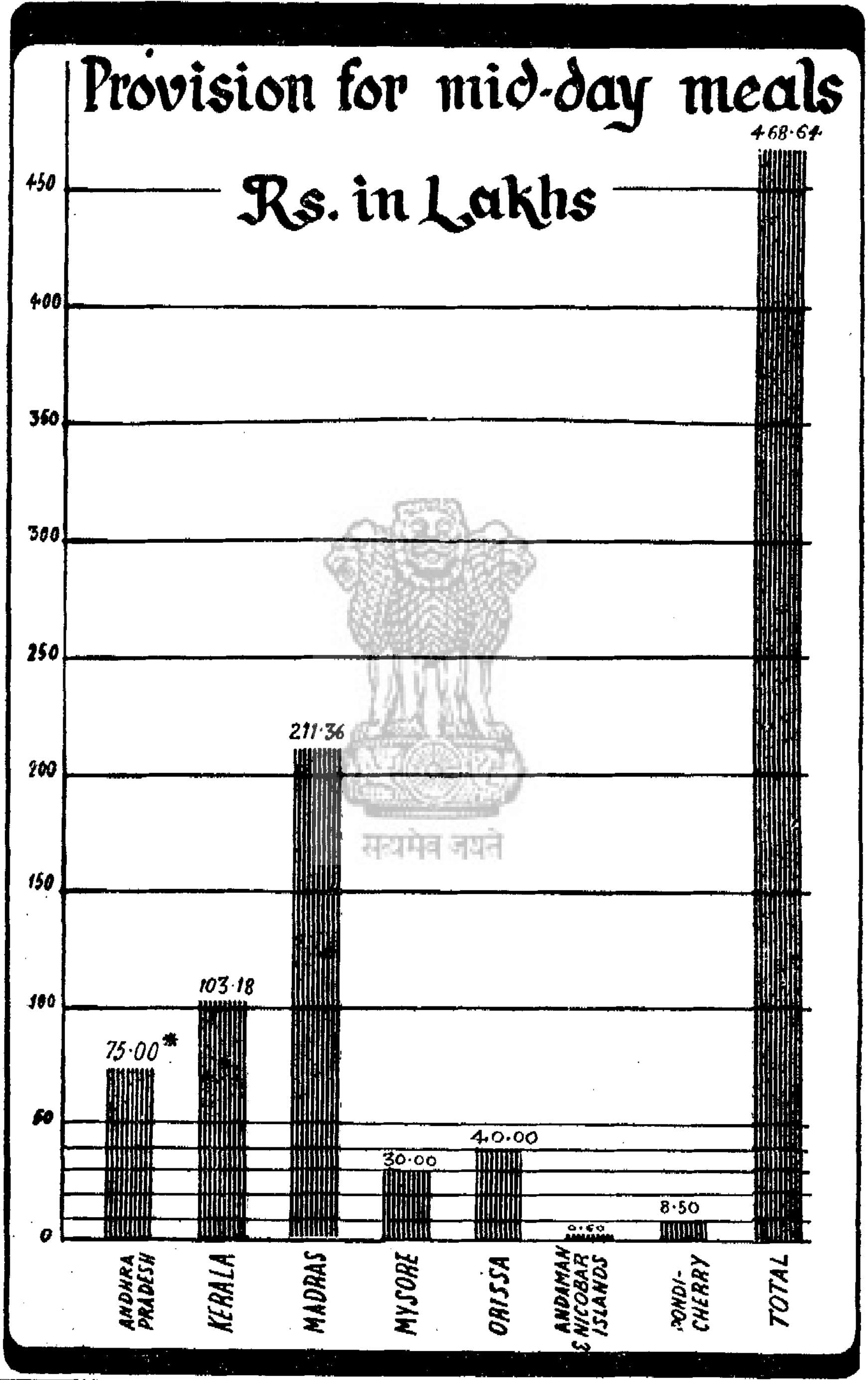
26. Close cooperation should exist between home and school. The parents and community should be invited to all meetings, and urged to take increasing responsibilities towards providing adequate meals for their children. The effectiveness of the school meal programme will gradually be reflected in the food pattern in the pupils' homes. Therefore, it is very important that parents know the kinds of foods served in the school meal programme.

Government Contribution

27. Our Constitution lays down the provision of free, universal and compulsory education up to the age of 14 years. One of the central aims of the Third Five Year Plan is to provide facilities for the education of all children in the age-group 6—11. The very basis of compulsory primary education is to have all round development of the children. To achieve this, they should be provided with food which will help them to build healthier bodies and minds. They cannot receive education if they come in a starving condition. It is essential that school lunch should be provided. If primary education is to be made compulsory and free to all according to the Constitution, we feel that the additional cost of school meals should also be made a charge on the public funds. There is no doubt, however, that the participation of the community in the school meal programme is essential and that every effort should be made to arouse the interest and support of the community. However, apart from the contributions of the community to the programme, the interest and the support of the Government, for psychological and other reasons, is of significant importance to the overall success of the school meal programme.

28. We understand that in a few States, where the school meal programme is in operation, the States are subsidising the scheme. In Andhra Pradesh, the Government pays a subsidy of 16 nP per meal per child while the balance is met by the local community who have constituted committees of non-officials for the purpose. The total cost of a meal per child varies between 16 nP and 25 nP. The committees collect foodgrains at the time of the harvest and also cash donations, besides arranging the storage of foodgrains and the cooking of the meals. In Orissa and Manipur, the department and the community share the cost of the meal equally, while in Himachal Pradesh, the department provides 66% of the cost; in Tripura, the people's contribution towards mid-day meals works out to about 52% of the total cost. In Kerala, where the cost of a meal served for each pupil is 6 nP, 80% of the cost is met by the State. The Government of Madras pays, towards the recurring cost on the scheme, a grant of 6 nP. per meal per pupil of the total cost of 10 nP per meal. The coverage of children in most of these States is, however, very limited.

29. In their 'Educational Plans' a few States have made some provision for mid-day meals. The table below summarises the position in this respect:



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*Includes some provision for supply of free books and stationery also.

The Central Government pays a subsidy of 50 per cent of the expenditure involved on the schemes in the State 'Educational Development' programmes which include scheme of mid-day meals. A sum of about Rs. 4.7 crores is thus provided in the Third Five Year Plan for mid-day meals. If an equal amount of it is added by way of contribution from the beneficiaries, local bodies, private organisations, etc., a programme of a total outlay of about Rs. 9-10 crores will be implemented during the Third Plan period even if no further assistance is to come. If we were to adhere to this programme, we shall hardly make any headway with the provision of mid-day meals.

Programme Proposed

30. We have already mentioned that the total number of children in the age-group 6—11 years attending schools by 1965-66, according to the target laid down in the Third Plan, would be roughly 50 millions. Past experience shows that there is generally a gap between the targets set and the achievement made. Moreover, the number of children who actually attended schools is, on most of the days less than the number on roll. We, therefore, feel that the school meal may have to be provided for about 40 million children so as to cover all school-going children in the age-group 6—11 years by 1965-66. Provision has already been made for covering roughly 1/10th of these children with mid-day meals in the Third Plan. Apart from the public contribution, which we reckon at 50% of the expenditure, the cost of providing school meal to these 40 million children could be covered by Government assistance and by external aid in kind. We think that it would not be difficult for the Government to take up the programme of this magnitude if the internal and external resources are mobilised.

31. There are indications that the external assistance may be available for this important programme in the shape of food articles. We have noted that during the first two Plans some big industrial and other projects have been undertaken with external assistance. Any proposal for an assistance from the foreign countries which would go a long way to improve the health of the children should be favourably considered. However, we are suggesting this as an interim measure only. We are sure that as and when there is an improvement in the internal resources and in the food production in the country, it would be possible to finance school meal programme through our own resources alone. Moreover, once the programme gets on the way and the community becomes aware of its benefits, an increasing participation on their part would be forthcoming. We are of the view that a problem of such magnitude and social implications can be tackled effectively only if the support of the community is secured on a mass scale. We recommend that in case the foreign assistance is made available, efforts should be made to implement the programme of the order envisaged by us above by securing corresponding support from the community. It is necessary that immediate steps should be taken to set up machinery through which the scheme of mid-day meal has to be carried out as, otherwise, when the resources are available we may not be in a position to carry out the work as rapidly as envisaged.

32. If external assistance and community participation on the scale mentioned above are not forthcoming in the early stages, it may become inevitable to scale down the number that could be covered from purely governmental internal resources and through 50% contribution from the

community. In such a case, we should cover roughly 14 million children. The contribution from the community in cash or kind for the programme of this magnitude would be roughly Rs. 42 crores.

This programme, of course, is only the first step as it covers only 14 million children even of age-groups 6—11 years. By carrying out this programme, we shall gain experience in the type of administration required and also be able to gauge the community response to the programme.

33. The following programme is proposed for 1962-66 :

(*i*) About 20 schools (20 villages) with a total of about 1,000 children on roll may be provided with school meal in each of the 5,000 community development blocks.

(*ii*) In addition, four districts in each State may be selected and all the children in the age-group (6—11) provided with school meals by 1965-66.

(*iii*) All corporations and large municipalities should take up school meal programme for the children studying in schools. The Government should aid the schools located in slum areas.

The table below shows the estimated cost of the programme to be taken up during 1962-66.

(Programme for 1962-66)

(*i*) *Rural Areas.*

Year	*Students covered (in million)*	*Cost (Rs. in crores)*
First year	1·0	2·4*
Second year	2·5	6·0
Third year	4·0	9·6
Fourth year	5·0	12·0
TOTAL	5·0	30·0

(*ii*) *District Projects* (60 *districts*) *with population of school-going children of* 147,000 *per district.*

Year	*Districts covered*	*Students covered (in million)*	*Cost (Rs. in crores)*
First year	15	2·2	5·28
Second year	30	4·4	10·56
Third year	45	6·6	15·84
Fourth year	60	8·8	21·12
TOTAL	60	8·8	52·80

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*The cost of provided school meal @ 12 nP per child per day for 200 working days in a year would be Rs. 24 per annum.

(*iii*) *Slum areas in corporations and big municipalities*

No. of children	0·2 million (roughly 1/10th of the total no. of children)
Cost	Rs. 1·2 crores.

Total cost (4 *years*)

	No. of children covered (in million)	*Total cost (Rs. in crores)*
(*i*) Community Development Blocks	5·0	30·0
(*ii*) District Projects	8·8	52·8
(*iii*) Slum areas in corporations and big municipalities	0·2	1·2
	14·0	84·0

34. The programme recomended by us should be over and above the programmes already being undertaken in various States. The programme can be further extended where people's contribution is available in a greater degree.

35. We suggest the following criteria for the selection of villages districts given in order of merit :

(*i*) Districts covered by health services for school children.

(*ii*) Villages in the economically backward areas.

(*iii*) Villages where general health of the children/people is poor (indices—high infantile death rate, high morbidity or mortality rates).

(*iv*) Villages round about the primary health unit where the approach road to the villages are available. The villages selected should not be scattered over a large area but should form a compact block.

Perspective Planning

36. We have stated that it should be possible to provide school meal to 40 million children of the age-group 6—11 years by 1965-66 if the external assistance is made available. In such a case, during the Fourth Plan period, the scheme of providing mid-day meals could be extended to cover children of the middle schools also along with the children of primary schools. Wherever possible, the students of high schools and colleges could also be provided with school meals.

37. In case the external assitance is not available and the programme during the Third Plan has to be scaled down, we shall be providing school meal to roughly 14 million children studying in primary schools. There will thus be a spillover of about 35-36 million children in this age-group

who will have to be provided with school meals during the Fourth Plan period. In addition, there would be new entrants to the primary schools. It is estimated that by 1971 the total number of children between the age-group 6—11 would be roughly 85 to 86 million. We recommend that during the Fourth Plan period, the programme should be extended so as to cover at least this population. This would mean that even during the Fourth Plan period children of middle and high schools cannot be covered except in a few places where facilities exist.

38. We shall discuss in detail in Chapter X the organisational set-up and the functions which the community, students, parents, teachers and the staff of education, health, agriculture and community development departments can perform in establishing a sound school meal programme.

CHAPTER VI

PRE-SCHOOL CHILD

> *"The child shall enjoy special protection, and shall be given opportunities and facilities, by law and by other means, to enable him to develop physically, mentally, morally, spiritually and socially in a healthy and normal manner and in conditions of freedom and dignity. In the enactment of laws for this purpose the best interests of the child shall be the paramount consideration."*
>
> —United Nations Declaration
> of the Rights of the Child.

Introduction

In the preceding chapters, we have discussed the programme designed to improve the health and nutritional status of school children. This Committee has also been asked to study and make its recommendations "on the present facilities for promoting nutritional standards of pre-school children and to suggest practical measures to improve the present position." We felt that it was necessary to suggest ways and means through which a comprehensive child welfare service could be provided for the pre-school child. Subsequently, however, the Central Social Welfare Board has appointed a Committee on Child Care with a view to study the welfare needs of the child in the family and in the community up to the age of six. We have, therefore, decided not to consider this problem from its wider aspect but to confine ourselves to the nutritional needs of the pre-school child. This means that we are strictly adhering to the terms of reference.

Pre-School Stage

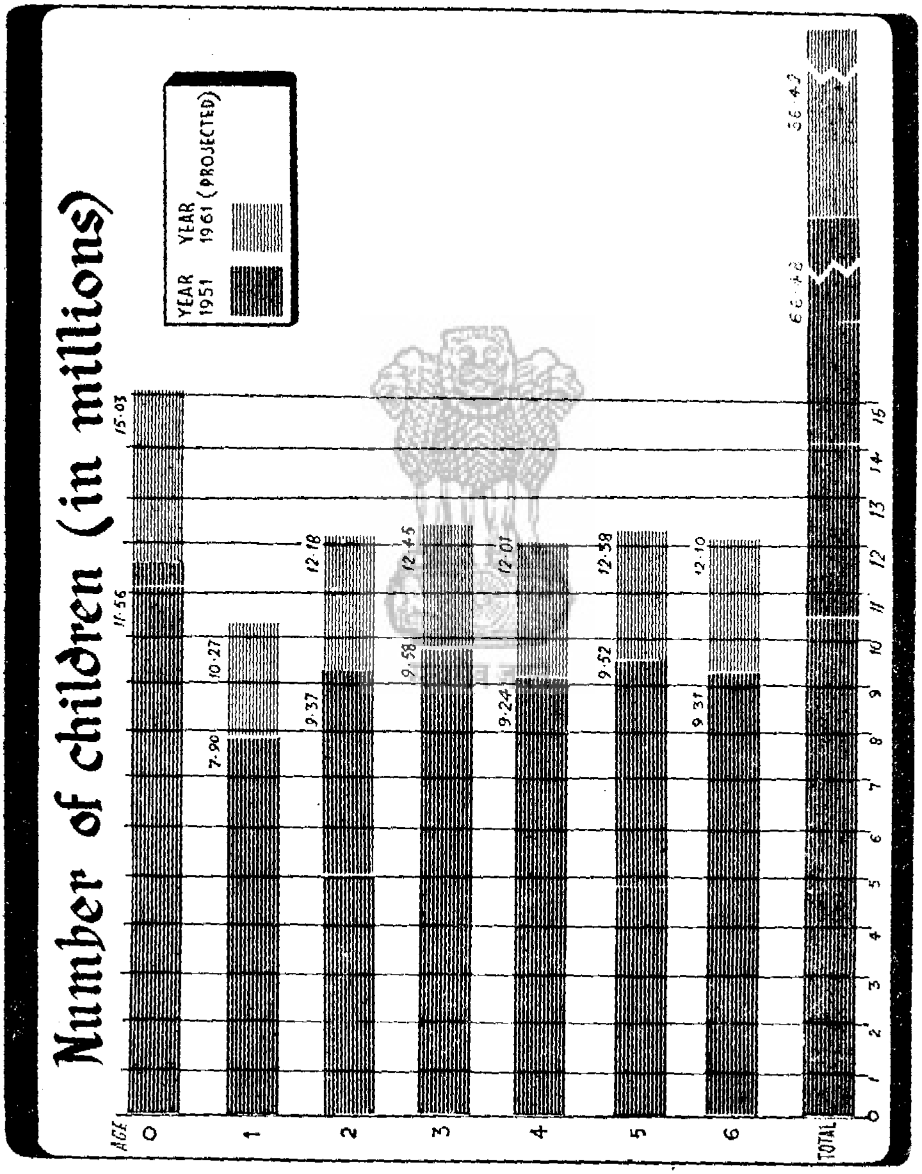
2. The group of pre-school stage includes children over one year of age and up to six years. The child population in the country in the age-group 0—6 is given in the table on next page.

3. The pre-school period is extremely important but unfortunately much neglected in the child's life in our country. Child welfare services hardly exist. Yet it is during these earliest years, from infancy onwards, that irreparable harm is done due to lack of proper health services and measures to counteract malnutrition. We are definitely of the opinion that the segment of the population that constitutes this age-group is in urgent need of protection.

4. The First Five Year Plan, while realising the problem, stated :

> "The highly impressionable, plastic and educationally potent period of a child's life preceding the age of six, when compulsion begins, has been neglected in India although it is all the more

important in this country in view of the extremely depressing conditions of home life in most cases. The existing schools are mostly concentrated in the richer classes while the need of the rural areas and of industrial labour which is very much greater, is almost completely neglected."



Unfortunately, the First Plan did not suggest any concrete measures to tackle the problem. In the past, the work for child care had been undertaken in some parts of India, usually in urban areas, by social welfare organisations of repute and standing. In the First Plan period, it was practically left to these organisations to carry on the work of child welfare. Thus it remained almost in the nature of pilot projects. Some steps have been taken to expand facilities for pre-school education during the last decade. The number of children enrolled in pre-school classes rose from 28,000 in 1950-51 to 75,000 in 1955-56, and is now estimated at about 3,00,000.

Health and Nutritional Level of Pre-School Children

5. That living conditions prevailing in our country for the vast majority of children are not conducive to good health is well known. A large number of school children bear the needless brunt of permanent disability and handicaps from illnesses which are preventable and whose effects could be mitigated during infancy and early childhood. Retarded growth, nutritional disorders, chronic otorrhea, chronic respiratory and gastro-intestinal diseases, caries of the teeth, behaviour problems, enuresis, handicaps of vision, hearing and speech are frequently found among new entrants to the school. In some cases, the damage is premanent.

6. As in the case of school child, it is equally, if not more, important for the pre-school child that his timely immunization against preventable diseases and protection against various other infections and infestations need to be provided. The nutritional value of his diet is of the greatest consequence. As he is entirely dependent on the home environment, it is even more essential in his case that his parents are educated on the principles of child care and realise the need for avoiding accidents and seeking medical aid at an early stage.

7. Statistics available of mortality and morbidity among the children of pre-school age are meagre. According to a conservative estimate, about one-fifth of the total deaths in the population occur in the first year of life. Another one-fifth of total deaths occur in the age-group 1—4. This high mortality indicates the grave hazards to life the children face in the first four years of life. Chances of survival improve as the child grows older but even so there is no reason for complacency. In 1955, only 10% of all deaths in U.K. occurred in children below 15 years of age. In our country, this figure stood at about 50% in 1952.

8. Major factors responsible for the death and permanent disability when occurring in an already devitalized body of children are : nutritional disorders, communicable diseases and the various mental and physical defects. As already stated, protein malnutrition is one of the major problems facing several of the under-developed countries in the world. Cases of severe protein deficiency (Kwashiorkor) in infants due to protein deficiency are specially of great importance. During the years 1956-59, surveys were conducted with the help of WHO in four States of South India with a view to determine the incidence, severity and factors influencing the occurrence of Kwashiorkor. Over 4,500 children under five years of age were examined. Kwashiorkor and marasmus (emaciation) were observed in 2 to 3 per cent of the children. General protein malnutrition other than the above was seen in 5 to 25 per cent of the children. Reduced

serum albumin (below 4.0 g) was observed in 20 to 40 per cent of the children. An analysis of the admissions to the children's hospital revealed that nearly 5 to 15 per cent of all admissions were cases of severe protein deficiencies.

9. Diseases of the eye (Ocular manifestation) from deficiencies of vitamin 'A' constitute the commonest deficiency among the children. During the surveys carried out through the Indian Council of Medical Research, it was found that 10 to 14 per cent of the children examined were suffering from such diseases.

10. We have come across the results of another useful assessment of the nutritional status of over 1,450 children made at the Urban Health Centre of the All-India Institute of Hygiene and Public Health. The survey brought out that less than one-fourth of the total children examined were well nourished. These young children did not get an adequate amount of protein. On the other hand, it was found that they consumed a comparatively larger amount of carbohydrates.

11. Repeated attacks of respiratory tract infections and digestive diseases are frequent in pre-school children of the lower socio-economic groups. The severity and the chronic nature of the ailments have a deleterious effect on their vitality, growth and development. The enquiry at the Urban Health Centre showed that roughly 80 per cent were suffering from various degrees of ill-health, the pre-dominant illness being upper respiratory infections and chronic diarrhoea. The nutritional status of the above mentioned children was much below par. The stools of about 20 per cent of the children were positive for ascaris ova (roundworm).

12. Malnutrition in early years contributes greatly to the poor physique of our children. The treatment at a later stage cannot entirely make up for the earlier neglect. It is thus a matter of vital consequence that the needs of the pre-school child in this respect should be met. Among the various factors which account for a large number of nutritional deficiencies among children, a few are : lack of proteins, calories, vitamin A and riboflavin and minerals like iron and calcium. The deficiencies may arise due to prolonged inadequacy in diet and/or to poor intake, absorption and utilisation brought about by various infections and infestations. Poverty and ignorance are contributory factors. Equally important are the harmful feeding patterns. For instance, the use of barley water as the only food in cases of diarrhoea or fever and failure to use a wide variety of easily assimilable foods is very injurious.

13. Trachoma is another public health problem of importance associated with poverty, ignorance and dirt. A study by the Trachoma Pilot Project, Aligarh (1956-57) has shown that a majority of active trachoma cases are among children of the pre-school age-group. The incidence varies in different States, but no State is entirely exempt.

In early childhood, communicable diseases also take a heavy toll of life. Accurate data on the incidence, sequelae and mortality are lacking. However, all the communicable diseases are preventable if public health measures and education of the public could be carried out effectively.

Limitations of the Programme

14. We have reviewed, in brief, the existing health and nutritional conditions of children of pre-school age. This is with a view to show the importance and urgency of providing adequate measures for the protection of their health. We feel that measures directed towards reducing sickness and mortality among children must have the highest priority in the development of health services. Many institutions in which the services for infants and toddlers can be secured have come into existence. In 4,500 maternity and child welfare centres and 5,000 balwadis, measures are now being taken to look after the health and nutritional needs of children. These, however, need to be strengthened a great deal if they are to serve any useful purpose. Apart from this, there are institutions mainly in cities and in urban areas run by voluntary organisations which cater to the needs of pre-school children. Services could be provided for a much larger number of children if adequate arrangements are made at all the primary health centres, both for health services and for the distribution of milk and supplementary foodstuffs necessary to counteract mal-nutrition. While the Third Plan emphasised the need for child welfare services, it is disappointing that the only practical suggestion in this regard is "the setting up of integral pilot projects in child welfare on the basis of complete co-ordination in services provided by medical and public health, education, social welfare and other agencies". This is particularly so, when we find that pioneer social welfare organisations in the country have already done this type of experimental work on a small scale. It is surely time that we introduce a service which is more comprehensive. While it is true that our resources are limited and it is not feasible to reach every home, it is possible to provide adequate services for the pre-school child in all the institutions where he can be reached.

Role of Voluntary Agencies

15. We have already stated that there is lack of proper machinery through which it is possible for the Government to provide a comprehensive child welfare service during the Third Plan period. The voluntary agencies will thus continue to play as important a role as in the past. As in the case of school children, community help will be required if child care services are to be provided in a proper manner for the pre-school child. It should not be difficult to evolve a machinery through which the activities of the different social welfare organisations could be co-ordinated. Such a machinery should be able to undertake the implementation of nutritional programme for pre-school children.

Milk Distribution

16. Under the present circumstances, nutritional programme which we can recommend for pre-school children will have necessarily to centre round the distribution of milk produced in our country or made available through UNICEF, CARE and other agencies. We have recommended that every effort should be made to ensure that the milk supply produced in the country is made available to vulnerable segments of population such as expectant and nursing mothers, infants, pre-school children and school children who need it most. We have also stated that there is a shortage of milk supply at present in the country. The total production

of milk is at present reckoned at 22 million tons and it is expected to go up to about 25 million tons by the end of the Third Plan.

17. If each pre-school child is given milk at the rate of 1 or 1½ oz. per day per head, the total requirements will be of the order of 1,400 to 2,400 million lb. of dry milk. We have already recommended that it is the infants and mothers and the pre-school children who should have the first priority in regard to milk. The result is that while large quantitites of milk made available by the UNICEF remained unused, the pre-school children in particular and even school children do not, in many parts of the country, receive any milk. So far as proper distribution of milk to the pre-school children is concerned, steps should be taken to improve the position in this respect. In this regard, the services of Mahila Samitis and the pre-primary schools of the Community Development Blocks and welfare organisations like All-India Women's Conference, Balkan-ji-bari, Indian Council of Child Welfare, National Council of Women in India and Meals for Millions Association of India who supplement the milk with Nutro biscuits and 'MPF', working under a coordinated programme should be availed of. Arrangements should be made for pre-school children to assemble in places where they are able to drink the milk. It is particularly necessary to make such arrangements as it happens that the child for whom the milk is provided only gets a very small portion of it. We have indicated in an earlier chapter that it appears that the supplies from UNICEF and other International organisations may be increased and proper storage arrangements and distribution are made and utilisation is satisfactory.

Food Supplements

18. There is another possibility of preventing protein malnutrition among children. That is by providing a judicious combination of vegetable foodstuffs (which are rich in protein) which people of poor communities use in their homes. To corroborate this, we shall cite here the results of an experiment carried out in a rural area near Trichur in Kerala State during the year 1958-59. In this experiment, children from 1—5 years of age were fed three times daily for nine months. The menus for children in one village were rice, pulses and vegetable foodstuffs while in the other, close by, skim milk replaced the pulses entirely. Children in both the areas received about 2 oz. of locally available vegetable each day. The calories and protein contents of the diets were kept identical for each age-group in the two experimental villages. Children in the third village, also close by, who were not given the supplementing food, were used as controls. The experiment could not be very well carried out, because very few children attended regularly all the meals. Yet the results show that the difference with regard to weight and height gained between the children being fed at the centre on the one hand and the control group on the other hand was significant in favour of the experimental groups. It was found out that the diets of the type fed in these trials whether based on skim milk or sources of vegetable proteins were capable of significantly augmenting the growth performance of the children in this poor community.

19. There is thus need to evolve diets which are biologically more efficient by a judicious combination of the available foodstuffs which are

rich in protein. An important drawback of vegetable proteins is the relative imbalance in their essential amino-acid composition. It has been possible to overcome this defect through combination of suitable vegetable protein foods. The cases of kwashiorkor among children have been treated with mixtures of vegetable protein food and the results have been very encouraging. The results of investigations carried out at the Nutrition Research Laboratory, Hyderabad, have shown that a blend of protein from cereals, legumes and green leafy vegetables possesses high nutritive value. This knowledge has been useful for evolving a judicious combination of various vegetable foods which would provide a balanced supply of all the essential amino-acids.

Cost of the Programme

20. We have already mentioned that the numbers of institutions or organisations through which we can reach pre-school children are, at present, very few. The table shows the estimated number of children who can be covered through such institutions :

TABLE II

Number of pre-school children who can be covered at present through various organisations

Institution/Organisation	*Number (by the end of Second Plan period).*	*Estimated number of pre-school children covered (in lakhs).*
(*i*) Balwadis	5,000	3·00
(*ii*) Maternity and Child Welfare Centres ..	4,000	10·00
(*iii*) Primary Health Centres	2,800	
(*iv*) Other organisations and agencies ..		2·00
TOTAL ..		15·00 (or 2·5 per cent of the total child population in the age-group 1—6).

22. The quantity of milk required per year for these 15 lakhs of children is roughly 51 million pounds if each child is given 1½ oz. of milk per day. We expect that the skim milk and vitamin supplement needed for distribution to these children would be made available by UNICEF and other allied organisations. The distribution of milk if undertaken by the Social Welfare Organisations should not entail vast expenditure in the shape of appointment of personnel. It has, however, been calculated that the cost of distribution of one ton of skim milk works out to about Rs. 150. The total cost of distributing 51 million pounds of milk to 15 lakhs of children would, therefore, be roughly Rs. 3.4 crores per year.

CHAPTER VII

SCHOOL HEALTH EDUCATION

Health Education, like general education, is concerned with change in knowledge, attitude and behaviour. Its aim is to help people learn how to have better health through their own efforts. It may be considered as applied science based on solid scientific and social foundations. It evolves out of the application of biological and physical sciences on the one side and the social and behavioural disciplines on the other. "School Health Education is that part of health education which takes place in or through the schools."*

2. Instruction in physiology and hygiene formed the beginnings of health education in the school curriculum. The more recent trend of changing the terminology from "physiology and hygiene" to "health education" is an effort to change from mainly didactic instruction on structure and function of the human body to a broader approach which emphasises the application of that knowledge in human living.

3. The health of the people of our country is far from ideal. A great deal of ill-health is the result of ignorance of simple rules of hygiene or of indifference to their practical application. It is realised that "no single measure is likely to give a greater return in proportion of outlay than health education."**

Need of Health Education in Schools

4. The school is one avenue of approach to the community and a very important one since the children of school age represent a sizable portion of the population.

Another reason for supporting a school health programme lies in the opportunities it affords to help children during their formative years to gain knowledge and understanding of health, develop favourable attitudes, and formulate desirable health practices (or habits).

5. It is important to include health education as a part of the general education programme in the primary schools because of the large number of children through whom their homes can be reached. It is equally important to include health education in the curriculum of the secondary school because teachers and future leaders of the nation come from this group.

6. "If the broadest sense is to be taken, it may be said that health is both a pre-requisite for, and a goal of, formal education."*** "To stimulate and guide the child's physical development and establish in him sound health habits" is first in a list of objectives of Primary Education as given by the UNESCO International Advisory Committee on School Curriculum.

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*WHO Report on School Health Education in South East Asia.

**Planning Commission in First Five Year Plan.

***Statement UNESCO Secretariat.

7. Health cannot be given to children. Parents cannot buy health for their children. Young people must earn health for themselves. This makes it imperative that health education be included in the school programme, and that it be taught in such a way that children are motivated to improve their own health through following sound health principles.

Present Position in Our Country

8. The Basic Education system, as expounded by Mahatma Gandhi, contains the essential ingredients of a school health programme. The true education of an individual, which is the all round development of his faculties, is best obtained through action. Thinking develops in man only as an aid to action. Gandhiji's scheme of education, then, is based on the sound premise that knowledge and understanding develop in relation to action. Gandhiji further advocated specific attention to health matters declaring that cleanliness and sanitation form the Alpha and Omega of school training. Persistent questioning and healthy inquisitiveness are the first requisites for acquiring learning of any kind.

9. Basic Education is now the pattern of national education at the elementary school stage. Personal hygiene and sanitation are given special emphasis in the Basic Education syllabus. But these will not be of much value unless pupils put the lessons into daily practice.

10. In 1959, surveys were made of health content of syllabi in force in primary and secondary schools. These revealed that health topics were included in every syllabus examined under various subject heads. However, the surveys did not indicate the extent of the coverage and to what extent the teaching emphasised practical experiences for the children. The practical side appears to be neglected in most of the schools. Nor are we satisfied that the health curriculum includes emphasis on the social and psychological factors affecting child health.

11. Based on the above surveys of primary school syllabi, the following comments are selected to point the needed emphases for the future :

(1) The general survey of these syllabi reflects that the teaching of health education is considered to be of secondary importance,

(2) A majority of States provide teaching about balanced diet, nutritious food, vitamins and allied topics connected with them. But it is disappointing to say that except in Orissa no teaching is given in the saving of food nutrients. So also children are not given instruction about the disadvantages and harmful effects of over-eating. Though almost all admit the importance of milk in daily food, they have not made a place for this topic in the syllabus except in Bombay State. This may be considered while revising the syllabus in the various States.

(3) Stress may be laid on the importance of vaccination and inoculation and registration of diseases. There should be emphasis on the schemes of State and Central Governments for the control of diseases.

(4) The importance of exercises and games cannot be overemphasised, taking into consideration the low physical health

standards of an average Indian. Hence, the necessity for training in games and exercises suitable to age and sex.

(5) Roughly 72% of the people depend on agriculture. They live in close contact with farm animals and their health is affected by the insanitary conditions in which they live. It is likely that they may be exposed to transmittable diseases from the farm animals to man. Therefore, topics on animal hygiene may be included in village school syllabi.

(6) Teaching of simple safety and first-aid measures may be included.

(7) Family life education which is not provided in any of the States may be given in later stages (10—11 years).

School Health Education Sections

12. An important step taken in this direction, in the recent years, is the establishment of a School Health Education Section in the Central Health Education Bureau. We understand that similar sections in the State Health Education Bureaux are in the process of establishment. One of the important functions of this Section is to assist and guide the Teacher-Training Programmes. They will undertake to study the health content of the existing syllabi and revise the syllabi to suit particular areas in the State. These Sections will also examine text-books on different subjects and suggest suitable lessons in health to be included in them. Developing simple and effective teaching aids and instruction material will also be undertaken by these Sections. We recommend the School Health Education Section at the Central Helath Education Bureau and the Student Health Units of the State Bureaux should be further developed and strengthened to discharge these functions.

Health Teaching in Foreign Countries*

13. In a number of countries of the world, health instruction is provided extensively, usually through planned integration into other subjects, but in some cases through classes devoted to health education for specific periods of time during a school year.

14. More attention is given to health teaching in primary schools than in the later school years. In the primary schools, emphasis is generally laid upon nutrition, personal health habits with special emphasis on cleanliness, accident prevention, prevention and control of disease (sanitation), the value of exercise and recreational, dental health, sleep and rest, and environmental health. In the programme for middle classes, the following are included : nutrition, body function and care, accident prevention and traffic safety, prevention and control of diseases, dental health, and value of exercise and rest. The high school students study traffic safety, nutrition education including food for the family, body function and care, community health, the value of exercise and recreation, sex education, environmental health, habit forming substances (tobacco, alcohol and narcotics), and mental and emotional health.

15. The personnel who have the responsibility for the health education of school children vary somewhat from country to country. In most countries, although other departments and agencies may assist, persons

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*Child health and the school—World Confederation of Organizations of the Teaching Profession.

Imparting health education in a rural primary school

Use of health charts emphasising the need for cleanliness, exercise, balanced diet and rest

A lesson in personal hygiene

Morning health check-up of pupils by a health monito from the Department of Education and the Department of Health have major responsibilities.

Recommendations of WHO Regional Committees

16. The Expert Committee on school health services (1951) have made the following observations on the conduct of health education :

> "Health teaching needs to be linked with the everyday living needs and experience of children, related to their changing interests and to the social, cultural, and economic environment in which they are living and growing. The emphasis should be on the simple and practical throughout both incidental and planned health instruction. Attention may be given to personal, home, school and village cleanliness; the most effective use of available foodstuffs; development of school and home gardens; provision of drinking and hand-washing facilities; erection of suitable latrines; drainage of mosquito-breeding places; rodent and insect control; effect of physical disease and defect on the body and on ability to learn; mothercraft and child care."

17. School health education was the subject of the technical discussion held during the 9th session of the WHO Regional Committee for South East Asia in New Delhi in September 1956. Arising out of these discussions, a number of useful recommendations have been made in regard to teaching health education in schools. Among the various recommendations made, the following are significant :

(*i*) Competent persons should be recruited for training in school health education. Upon completion of their studies, these persons should be assigned to teacher-training institutions to develop programmes for training teachers, and to other key positions in their countries where they will be able to develop and co-ordinate school health education. They should be responsible for assisting the Education Department and teachers in school systems in setting up effective school health education programmes. They should offer assistance in building curricula in which there are emphases on what the children can do to improve their individual health as well as community health.

(*ii*) Health teaching should be based on the health needs and interests of children and youth, and of their families and of the communities where they live.

(*iii*) Consideration may be given to cultural, psychological, sociological and economic factors which have a bearing on health behaviour.

(*iv*) Education in health matters may be an integral part of the total programme of education, being neither neglected nor over-emphasised, and may be guided by sound principles of learning.

(*v*) Scientifically sound health facts may form the basic content of health teaching.

(*vi*) There should be a series of learning activities in health commensurate with the level of maturity of pupils and providing them with opportunities for participation in practical problem-solving situations.

(*vii*) Health education in the school needs to be co-ordinated with the health education programmes in the home and in the community.

Health Education in Home, School and Community

18. We wish to emphasise that improvements in health habits and attitudes are more likely to be attained through practical experience centered round day-to-day activities in home, school and community. Health education should begin by teaching the children in the primary schools, simple measures as already mentioned, and these activities should be expanded and enlarged as the children grow. There should be correlation between what they are taught in the primary, middle and high schools and colleges. What we mean is that 'there should be a sequence of learning activities in health as in other areas of learning'.

At Home

19. The home should provide the essentials of health training and determine, to a large extent, the ultimate success in the development of a healthy child. The responsibility of parents for the health of their children, as for other fundamental needs, is, therefore, great and much of it cannot be delegated to others. This responsibility includes supervision of health practices, securing of needed medical care and provision of other physical necessities. It also includes the provision of an emotional environment and social setting conducive to wholesome growth and development. The home has the responsibility for making the effort to provide the minimum facilities for practising what is taught in the school.

At School

20. The school's role in the promotion of health of children and youth is to assist parents in fulfilling their responsibilities and not to relieve the home of this obligation. It is universally agreed that the primary duty of the school is to provide sound instruction with regard to health matters and other subjects. The school, through the teachers, is concerned with the hygienic conditions and the attractiveness of the environment. Steps will be taken to keep the existing environment in good condition. The school leadership will also urge authorities to provide the right environment to promote health, prevent disease and furnish opportunities in which children can practise good health habits.

The health of the teacher and other staff members is an important factor in health education. School authorities should follow measures to employ teachers who are in sound health, and should take steps to see that conditions under which they are working are conducive to healthy living. It is all the more important that teachers practise good health habits at all times to set examples for the students. To bring about the success of health education in the home, it is very necessary that there is close parent-teacher association. Organised effort to set up permanent parent-teacher associations in this direction is necessary.

Role of Health Personnel

21. The community health service has responsibility for taking steps to prevent disease and promote health of all the people. The public health

department plays an important role in health education by keeping the school personnel up-to-date on health matters. The health personnel through the organised community activities, will help parents to take appropriate action related to the health teaching carried out in the school.

22. A good School Health Education Programme provides proper administration, supervision and guidance at all levels.

(a) *State Administration.*—The State Administration should play a vital role in the effective implementation of school health education programmes and in setting standards for the State in accordance with the national policy. Copies of syllabi and of rules and regulations relating to health teaching should be duly distributed. It is for the State Administration to see that schools are provided with the amenities necessary to good teaching. High standards of sanitation and health practices should be encouraged by the State Administration.

If the health education programme in schools is to be successful, proper materials of instruction are essential. The State Administration will take steps to see that text-books are up-to-date, attractively written, and adapted to the developmental level of students for whom they are intended. Text material may be produced in book form or may be prepared as special lessons or units to be included in other subject text-books. The teacher will need suitable manuals and guide books to give basic information and procedures for presenting health lessons in an interesting and stimulating way. The State Administration will see that teachers are provided with these essential teaching aids. States may look to the Central Government for assistance in developing these instructional materials and teaching aids. The Central Health Education Bureau, in co-operation with the appropriate advisers in primary and secondary education and in teacher training including extension programmes, may be given the responsibility for developing "model" or "type" material for use by State Health Education Bureaux in developing their own.

(b) *District and Block Level.*—Education officers in co-operation with health officers and nursing personnel should provide leadership in developing sound health education curriculum. Supervision of the health teaching in schools should be done by the education officers as a part of their regular duties.

(c) *Local Community.*—Panchayats and other local leaders can encourage and assist the teacher in carrying out his responsibilities in health education. Sanitary and other health facilities to supplement those coming from the State can be provided through efforts of the local leaders. The Panchayat can also take leadership in the community to inform parents as to the health needs of their children and how to take steps to meet these needs.

23. A good School Health Education Programme provides a curriculum in relation to needs and development of the children and in relation to the community health problems.

Primary Schools

24. When children enter school they bring with them health practices which are the result of their experiences at home and in their community.

The teacher cannot change the past experiences but these can be understood and new situations created to help the child learn new sound health practices. Learning activities have to be planned in accordance with the principles of health education mentioned by us earlier.

The fundamental facts of health suitable for primary children are relatively simple. Most of the emphasis in the primary grades may be placed on practising healthful living. The teaching should be realistic, as it should be in all classes. But the teaching should be practical, related to his development, past experiences, his home conditions, and his present needs.

The Basic Education plan, now used in many schools, offers opportunities to develop understanding of health through children helping to maintain the cleanliness of the school and its surroundings; through making school gardens; through participating in the mid-day meals programme where there is one in the school. In addition, the teacher may ask himself "how can I teach these children about the dangers of polluted drinking water, of the value of using latrines, of the importance of the community health services to them and their families?" Specific practical health topics to explore with the children will come from the teacher's knowledge of the home conditions of the children and the community resources to meet the health needs.

Middle Schools

25. Health practices taught in primary classes are not always fully established by the time the child completes his primary school period. Health attitudes and practices, therefore, continue to need attention during the middle classes. At this age, some understanding of the practices can be achieved. The "why" of the practices now begins to receive more attention in the health teaching. Realistic goals and objectives may be set and learning experiences may be planned by the teacher, in accordance with the general education programme. This will help the student to acquire new specific knowledge and develop favourable attitudes which will lead to desired behaviour. Use of forces within the learner which moves him to want to change his health behaviour makes the health teaching more dynamic. Some of these are :

(*a*) Use of the student's desire to satisfy his basic needs for self-esteem, affection, acceptance, security, and achievement.

(*b*) The utilization of group influences since students value the attitude and behaviour of any group to which they belong.

(*c*) Utilization of the student's keen interest in his fast developing body.

(*d*) The desire of the youth to become an adult.

The learning experiences selected for pupils in middle classes can be exciting and full of interest, especially when they are life-centered rather than totally book-centered. Students of this age-group appreciate and respond favourably to problems about everyday life. In schools where there are special subject teachers, the health content of the curriculum may be correlated with the specific subjects taught. Where the classroom teacher is responsible for all teaching in the class, he will, of course, be responsible for the health teaching as well.

Secondary Schools

26. Since most secondary schools are organised with special teachers for the various subjects, the health curriculum may be carefully planned so as to avoid unnecessary duplication and serious omissions, with appropriate health topics being incorporated within the respective special subjects. In addition, many schools and especially large schools, may find the need to include at least one optional special study in health. Such a subject study could serve several purposes including the following :

(*i*) Provide more intensive and extensive instruction in health.

(*ii*) Help to consolidate the learning in health matters from all other courses.

(*iii*) Provide basic training and pre-professional training for certain students who may later take up special work such as health inspectors, nurses, health visitor duties.

(*iv*) Provide basic information about community health, family living and child care which will be useful to them as adult citizens.

However, care may be taken to see that there are not adverse outcomes when all other teachers and administrators as well, tend to assume that this one unit will take full responsibility for all the health teaching in the school.

As appropriate subjects in the secondary school may include certain health topics, likewise, a proportionate number of questions regarding health may be included in the examination in those subjects.

27. We have gone through, carefully, the draft syllabi in health education for age-groups 6—11, 11—14 and 14—17 and for teacher-training courses prepared by the Joint Committee on Health Education-Nutrition Education. We feel that these can be adapted with slight variations here and there according to local needs in the schools.

CHAPTER VIII

TRAINING, STUDIES AND RESEARCH

Training

A health programme which meets the need of school-age children requires staff trained for this work. Along with finance, the lack of availability of qualified personnel is a major barrier for the implementation of school health programmes. Knowledge of the health needs of children and possession of technical skills to meet these needs through a team approach should be provided in the training for all personnel engaged in school health work.

2. We wish to draw pointed attention of health and education administration to the urgent need for re-orienting their different training programmes to give real learning experiences. We are convinced that the best way for the trainees to learn is to do the jobs themselves. The training centre should provide ample opportunity for the trainees to practise their role in the school health programme under constant supervision. Theoretical background is necessary, but actual performance of the task in rendering the services is essential. We firmly recommended that the training programme which we suggest in the following paragraphs should be mainly practical and job-oriented.

Training of Doctors

3. *In-service.*—We have noticed that the doctor and other members of the health team working in the primary health centre need proper orientation and preparation for providing preventive and promotional health services. The training programme of the existing orientation and other training centres in the country will have to be critically evaluated. It has to be re-organised so as to equip the trainees to play their role effectively in providing health care with understanding and faith in the preventive services. The training should also provide opportunity as to how the health team can and should participate in the community development and welfare activities of the block. The ways of utilising the community development personnel in rendering rural health services should also be demonstrated and practised during the training period. Such a training should include emphasis on different aspects of school health programme, especially that related to the medical examination and follow-up services, assistance and guidance in health education, the relationship of school and community health, nutritional status and needs of school children, immunisation and other preventive health measures.

4. *Pre-service.*—The in-service training stated above will be meaningful and perhaps fruitful if the primary health centre doctor has sound background in social and preventive medicine in his or her under-graduate curriculum. We understand that the present curriculum of social and preventive medicine in the medical colleges provide some knowledge and experience in the health of school-age children, but there seems to be little planned and coordinated efforts to give an overall integrated picture

of school health programme, its relationship to community health and the role of the general practitioner in the programme. We, therefore, recommend that the Indian Medical Council and Universities should examine the curriculum of social and preventive medicine with a view to provide sufficient emphasis on the health of school-age child.

5. Recognising the importance of social and preventive aspects of medicine, a scheme of strengthening social and preventive departments in the medical colleges has been taken up since the First Plan period. These departments have not yet been established in all the medical colleges of the country. Many medical colleges continue to have departments of hygiene run by part-time teachers. We recommend that hygiene departments should be upgraded to departments of social and preventive medicine not only to teach modern concepts of social and preventive medicine but also to assist all the other departments of the colleges to give a preventive bias in their teaching work. Thus, the under-graduate students will be able to realise the importance and usefulness of preventive medicine through inter-relation with the teaching and experience provided in all departments.

6. We also understand that each medical college is to have a field practice area attached to it. With this, it should be possible for the college to provide necessary practical experience in the organisation and provision of school health services. These field practising centres should be provided with the required staff and equipment to facilitate provision of such experiences.

7. Since health education forms a component of health care, the medical student should acquire sufficient scientific knowledge and skill to practise health education as a general practitioner. He should also know how to draw upon the resources of specialists of other disciplines including health educators for efficient discharge of this responsibility.

8. Proper supervision and guidance is needed at the State and other levels. The medical officer discharging these supervisory duties will have to possess advanced knowledge and sound experience for administering school health programme. School health is one of the subjects taught in the D.P.H. and the D.M.C.W. Courses at the All-India Institute of Hygiene and Public Health, Calcutta. The training provided in school health in these courses is of a general nature. The Committee feels that short specialised courses covering all aspects of school health should be provided by the Institute for those who will be incharge of administering and supervising school health. Similar courses should also be organised either at the field training centres attached to the medical colleges or at the proposed demonstration districts for integrated health services.

9. Most of the doctors require additional knowledge of the science of nutrition and the practice of dietetics. Steps should be taken to arrange short-term courses and seminars with a view to provide adequate training to doctors in applied nutrition.

Training of Auxiliary Health Personnel

10. In our country the shortage of qualified nurses may persist for many years. It is, therefore, necessary that auxiliary nurse-midwives are trained in large numbers. The training imparted at present to the auxiliary nurse-midwives include little of child care and school health. The Committee recommends that the Indian Nursing Council should re-examine the syllabus and include the subject of School Health in the curriculum

besides fundamentals of healthful school environment, elements of nutrition and treatment of minor ailments.

11. Health visitors have been employed in many primary health centres. We consider it essential to review the present curriculum of training of health visitors with a view to see that sufficient emphasis is placed on school health programme. During the course of their training, they should perform the duties of a school health nurse and clearly understand the details of technical aspects of the work so that they may be in a position to guide the teacher in his school health responsibilities.

12. The sanitary inspector working in the primary health centre will have to assist the school administration in maintaining and improving the sanitation of the school. In some of the sanitary inspectors' training courses conducted in different States, fundamentals of school sanitation have been included. In others, they are lacking. We have carefully examined the curriculum of sanitary inspectors' training courses formulated by the Director General of Health Services. It covers all the main aspects of school health programme including school sanitation. The Committee recommends that this curriculum should be followed in all the sanitary inspectors' training courses in India.

13. For those who are already in service, it is quite essential to organise short in-service courses in school health which should be of a very practical nature. Such courses may be offered at the district headquarters of the district selected for demonstration of integrated health services or at the orientation training centres.

Teacher Training

14. In order to perform his role in the health programme in an acceptable and responsible manner, the teacher needs adequate preparation and training. Therefore, health education and school health should be a required part of the training of every category of teachers.

15. Though health is a way of life, it still remains that there is a specific body of knowledge, skills and practices to be learnt. In the dual task of maintaining his own health and contributing to the health education of his pupils, the teacher will need knowledge of the following* :

1. Growth and development.
2. Personal health.
3. Community health.
4. School health practice.
5. Methods of health education.

16. Teacher Training programme in basic education already includes training in health and hygiene. The Committee recommends that syllabi be scrutinised with a view to bring these in line with the recommendations of this report. The health education requirement of the B.Ed/B.T. courses may also be reviewed and revised in accordance with this Committee's recommendations.

17. In order to ensure the proper development of training opportunities in health education and school health, it is recommended that one

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*Joint WHO/UNESCO Expert Committee Report, "Teacher Preparation for Health Education", 1960. World Health Organisation Technical Report Series, No. 193.

person in each teacher training college or teacher training institution be responsible for coordination of courses and activities in health education. Persons assigned to this responsibility should receive special training in health education and in principles and practices in school and community health in the National Institute of Education and in the Zonal Institutes being set up by the Ministry of Education and in Post-Graduate Centres for health education to be developed by the Ministry of Health during the Third Plan period.

19. Teacher preparation for health education and school health, generally organised by education authorities, needs the cooperation and assistance of health personnel. Not only should health authorities help in planning the curriculum, but the personnel from the local primary health centre and health department should assist teacher-trainees to get practical experiences in school health and an understanding of the services provided by the local primary health centre.

20. Since many teachers have not had the benefit of good pre-service education in matters of health, it is essential to provide in-service training to help meet their needs. In-service programmes for these purposes should be organised by the same institutions as provide the pre-service training. In addition, special courses, especially short-term courses, should be organised in the local school organisation with the technical assistance from the health personnel. The Central and State Health Education Bureaux have responsibility for guiding and assisting training of teachers in health education both in pre-service and in-service types.

21. The draft syllabus, given in appendix, on health education for training of teachers, recommended by the Committee on Health Education-Nutrition Education set up by the Union Ministry of Education can serve as a guide to training colleges and institutions.

Administrators and Education Officers

22. Administrators and Education Officers, like teachers, need preparation essential for leadership and guidance. Teacher training institutions should also provide opportunities for administrators and supervisors to receive training for their respective responsibilities. In addition to receiving the training recommended for teachers, the administrators and supervisors need to know school health problems, administrative and supervisory techniques, and curriculum construction.

23. Since administrators and education officers already in the field may not have had adequate preparation in health education, short term orientation courses should be organised by training colleges or by local administration to provide in-service training. Provision of short courses for keeping up-to-date on new health matters are also needed.

Local Leaders

24. Camps or other type of short training courses already provided in the Community Development Programme for local leaders, panchayats should adequately emphasise their role in the school health programme.

Service Personnel

25. Besides the teachers and the health staff, all the other employees connected with the administration of the School Health Programme should also be given proper health orientation.

Studies and Research

Studies and research are quite essential for making school health programmes efficient, effective and economical. In fact, as the Prime Minister has said, research gives quality to education and service. Future school health and school meal policies and programmes should be developed from the results obtained through scientific surveys and studies. We have observed that there are various problems related to school health and school meal programme on which experts give different opinions. For example, there is no general agreement on the question of frequency of conducting medical examination. The analysis of the answers received in response to the questionnaire in Report II indicates the areas where opinions differ and the problems in which studies will have to be conducted.

We have suggested an administrative set-up for school health and school meal programmes. This organisational set-up could be further improved if short-term studies are instituted to find out its effectiveness and efficiency in terms of **personnel, coordination and expenditure.**

The Committee has come across a number of problems that need to be investigated. These are :

(*a*) Surveys to obtain detailed knowledge of health and disease in the school-age population in different areas of the country with reference to incidence, prevalence of morbidity and mortality and other data related to epidemiology of specific disease and defects;

(*b*) studies related to community understanding and participation with regard to problems and programmes of school health and school meal;

(*c*) a comparative study of health and disease among the school-age population in urban and rural areas in different regions of the country;

(*d*) the study of epidemiology of accidents in schools and in their environment;

(*e*) the assessment of the value of school health in improving the community health and *vice versa;*

(*f*) studies dealing with conservation of resources in school health programme;

(*g*) evaluation of different procedures used in school health programme. The procedures to be apprised will be such as screening test, medical examination, institution of remedial measures, follow-up services, immunisation schedule, teacher observation, student participation, involvement of parent-teacher and voluntary organisation.

(*h*) studies in developing suitable minimum standards of sanitary facilities, local nutrition requirements, health teaching and training of personnel.

(*i*) studies of school meal programme to determine their effect on growth and development, social adjustment, emotional reactions, and its effect on the food practices followed at home; and

(*j*) effective ways of providing specialised services like dental, mental, ophthalmological and E.N.T.

The above list is only sugestive and not exhaustive. There must be many more problems requiring investigation.

We have already stressed the need for maintenance and proper utilisation of health records of children. The Committee is of the view that there should be a uniform minimum system of record applicable throughout the country so that the data of one area could be compared with another. Besides this uniform minimum, each State may have certain additional records required to meet special needs.

Special study in the field of school health and school meal programme should naturally be the concern of both Education and Health Departments. Therefore, these studies necessitate joint planning and execution. The National School Health Council as proposed by us should co-ordinate all studies undertaken to improve the health of school children to avoid duplication of effort and dissipation of limited resources available.

CHAPTER IX

SCHOOL ENVIRONMENT

There is little doubt that the 'school environment' does affect the health of the students and teachers. We find that a considerable thought has already been given to the problem of school planning in our country. The Department of Education, Government of India, published in 1911 a report 'Occasional Report No. 6—Educational Buildings in India'. It dealt with not only the schools, but also training colleges, technical institutions, art and science colleges and University buildings. Later in 1941, the Central Advisory Board of Education appointed a School Building Committee to prepare a report for the guidance of the authorities concerned with the provision of school buildings. Along with the Central Government, the State Governments have also been doing useful work in this direction. Recently, the Ministry of Education, Government of India, have brought out, very clearly, in their report 'Planning Schools for India' the important considerations which should be given in the planning of schools in our country. Appendix VI to that report gives various model plans for school buildings. The report also deals with various aspects of the schools such as : sizes of class, classroom, school and its site, administrative facilities, assembly hall, library and craft space. It has also dealt with the provision of health services, school lunch facilities, drinking water, sanitary arrangements and school furniture. It has given model plans of buildings suitable for our country and their lighting and ventilation arrangements. The report also emphasises the need of having playgrounds and fencing around the school compound.

In addition to the provisions contained in the book "Planning Schools for India" issued in 1959 by the Ministry of Education, Government of India, it is necessary to incorporate the following as well :

Classrooms

Classrooms shall be not less than 150 sq. ft. in area. Maximum length of classrooms must be 30 and maximum width 20 and minimum height . Window openings, 20 per cent of the floor space in general, subject to the following modifications—if the angle of obstruction to light is less than 26½° owing to the openness of the lay-out or the height of the building—the proportion of the window area mentioned above may be reduced by 15 per cent. If the angle of obstruction is greater than 63½°, the window area should be increased by 15 per cent. The space so provided should be distributed from more than one direction to secure cross ventilation and adequate distribution of lighting. Windows on the east and west walls should have sunshades or verandahs not more than 12′ wide, to cut out direct sunlight. In the case of windows facing north or south, external hoods (sunshades) will be necessary for effective protection against rains; verandahs may be optional. Window sills may be given a gentle slope to avoid collection of dirt. Window jambs should preferably be splayed outwards in order to draw more light through the same area. In villages for elementary schools in hot parts of India, windows may be omitted and dwarf walls may be built to a height of 4′ to form classrooms.

Physical exercise in the form of *laizim* drill

Dancing as one of the cultural activities

No areas of glazing should be placed in the direct line of vision of teachers or pupils, *i.e.*, windows should not be provided on the front and rear walls unless louvres are used to screen effectively. Hoods over side windows may be used for the reduction of high intensities of daylight near windows. They should be arranged in such a way that the daylight is not cut off in the interior of the rooms. The ratio of maximum to minimum daylight factors inside the room should be 2 : 1 or less. The aim should be to get at a minimum of 5 per cent of daylight factor in the working area of classrooms. In rooms for special purposes, *e.g.*, sewing, drawing, etc., a higher figure of 10 per cent is desirable.

Ventilators

Ventilation openings should have an area of about 2 per cent of the floor space. The ventilators should preferably be of the fixed type which will communicate with the external air, admit light and prevent birds coming in and rain beating in.

2. It is realised that school buildings should be safe, attractive and sanitary. In selecting a location for schools, consideration should be given to : sufficient space for buildings and grounds, cleanliness, safe water supply and drainage and sanitation and attractiveness of surroundings. We understand that a set of very useful books on this subject has been supplied to each State Government. These should help them in the proper 'school planning' at the State level. We recommend that construction and maintenance of school buildings should be in accordance with the rules formulated by States.

Water Supply and Sanitation

3. We have stated earlier that water supply for schools should be safe and adequate to meet the normal needs of the present and future. In urban areas, the public water supply is generally available. Every school building should, in such a case, has water supply connection and adequate number of taps. In rural areas, an individual water supply system is desirable for each school. Or, if this is not possible in the near future, facilities for the storage of proper and adequate drinking water should be provided. We have indicated earlier that earthen pitchers, properly covered, and with taps fixed to them would serve the purpose. The number of pitchers should be in proportion to the children on roll. Facilities for cleaning and filling these regularly should be provided.

4. Safe and sanitary disposal of waste water is essential for health environment. In urban areas, wherever drainage facilities exist, these should be extended to all schools. In rural areas, drains should be constructed for the removal of waste water. These should be kept clean and not be allowed to develop into mosquito-breeding centres.

5. It has been suggested that wherever water supply and drainage facilities exist, there should be hand-flushing latrines connected to sewers, if feasible, or to septic tank disposal systems.

6. In other cases, especially in rural areas, hand-flushed latrines as per the type design approved by the Central Public Health Engineering Organisation of the Ministry of Health of Government of India should be

adopted. Where water is scarce, a bore-hole latrine should be used with a simple squat plate having an aperture which should be covered after use.

7. In the case of hand-flushed latrines the water closet should be connected to a separate pit or bore-hole which may be in duplicate. We, however, feel that the provision of latrines in the schools in villages is beset with many difficulties. Most of the children in rural areas do not want them in the first place. Considerable educational effort is, therefore, needed to instil sanitary habits in the children. Acceptable facilities will have to be provided and the children persuaded to use and maintain them. It has been stated in the Third Plan that the problems relating to proper design and construction of village latrines and the educational and organisational aspects of the programme for their promotion have been recently studied. The broad lines of an action programme in this field have thus been fairly established. We recommend that efforts should be made to create awareness among the children about the rural sanitation problems. In schools where school meal is served, these will have an added problem of the disposal of garbage. The garbage should be disposed of according to the method approved by health authorities.

8. As regards the standards to be adopted for sanitation, the Environmental Hygiene Committee have made the following recomendations :

Optima	*Minima*
Separate conveniences for staff and for students and for different sexes.	Separate conveniences for staff and for students and for different sexes.
One urinal seat for every 40 members or part thereof, and one latrine seat for every 60 members or part thereof.	One urinal for every 60 members or part thereof and one latrine seat for every 100 members or part thereof.
Water taps for washing at the rate of one for 100 members or part thereof.	Water taps may not be provided if there is no piped water supply, but at least a well, tube-well or other source of water supply should be provided within 50 yards.
Drinking water should be provided preferably through fountains or taps turned upwards, or from closed galvanized cisterns, fitted with water taps, at the rate of one for every 100 members or part thereof.	At least one mud pot or galvanized cistern holding four gallons of water to be provided and to be fitted with a water tap.

9. In the 'Planning Schools for India' it has been stated that where water supply system exists, drinking fountains should be provided in the ratio of one for every 50 pupils with a minimum of two in a school building. Where water connections do not exist, 'Mutkas' at the rate of one for every 30 pupils should be provided. The water should always be drawn from a tap. The use of a common drinking cup should be discouraged. The waste water from the fountain should be conveyed in pucca drains to a soak pit or a small garden.

10. Another point on which we lay particular emphasis is that the sale of food by hawkers in and round the schools should be prohibited by law. As we are recommending a school meal programme, it shall not be necessary for the children to buy from these hawkers who keep food articles generally in very unhygienic condition.

CHAPTER X

SCHOOL HEALTH ADMINISTRATION

The Present Position

'Health' and 'Education' are State subjects. However, the Central Health and Education Ministries lay down broad national policies related to public health and general education respectively. The Central Ministries, therefore, have no specific regulations for the administration of school health.

2. The school health and school meal programmes are administered in States by different departments. The medical inspection of schools in certain States is carried out by the health department. In others, the medical inspectors of schools are on the role of the Education Department and conduct periodical physical examination. In some States, school medical officers of health are employed for one or more districts. The school meal programmes are generally conducted by education departments. The District Education Officer and the Headmasters of the respective schools are responsible for the school meal programme or for the distribution of milk. We have observed that there is no one pattern of school health and school meal administration that is followed in all the States.

3. Though many official and non-official organisations are administering different types of school health programmes in the country, there is no effective co-ordination among them. Generally, these agencies work in water-tight compartments resulting in overlapping of services and waste of effort and resources. Efforts to co-ordinate the work related to school health education were made a few years ago with the constitution of the School Health Education and Nutrition Education Committee. This Committee includes representatives of both Education and Health Ministries, the Chairman being the Secretary to the Union Ministry of Education. Some States have recently constituted Student Health Committees as suggested by the Union Health Ministry in its scheme for establishing State Health Education Bureaux. These committees are under the Chairmanship of the State Director of Education with the representatives of Health, Education, Agriculture and Community Development Departments besides the representatives of medical and teaching professions.

School Health Administration in Other Countries

4. The administration of school health services and school meal programmes in some countries is in the hand of the department of Education while in others, the Health Department administers the schemes.

5. *U.S.A.*—In the United States of America, the major responsibility for determining and operating the school programmes rests with the local school boards. Many individuals and community agencies are involved in providing the medical and health personnel for school health services. Some schools contract for or receive their health services from local and State Health Departments. In communities where agencies other than State

Health Departments provide school health personnel, a school community health council or coordination group has generally proved to be an effective means of administering the school health programme.

6. *USSR.*—In the U.S.S.R., the school health services are provided by the local health departments. Doctors and nurses are assigned to work in specific schools and they are required not only to provide medical care but also to maintain the sanitation of the school. At the national and at the republic levels, a joint commission of the Education and Health Ministries is formed to go into different problems of school health and health education and suggest solutions. The national policies and programmes are implemented throughout the country with a few modifications to suit the local conditions. The school meals are administered by the Education Departments.

7. *ENGLAND.*—In England, administrative arrangements are made by the local education departments with the school as an active partner. Regulations issued by the Ministry form the basis on which the local education authorities make provision for buildings, sanitation, heating, lighting and ventilation. The school health services are provided by local education authorities with grants from the Ministry of Education. Some local education authorities have special 'Home Visitors' for following up children who have been in hospitals.

8. *PHILIPPINES.*—In the Philippines, the Education and Health Departments supplement each other's activities. The Education Department requires that each school should provide health and educational services conducive to health.

9. *JAPAN.*—In Japan, school health services are regarded as an integral part of school education. Besides health teaching, the school has a health service organisation composed of school doctor, dentist, pharmacist and nurse. The health services are conducted by co-operative efforts of the school, the Ministry of Education, Health Centres and other medical agencies. The National School Health Law regulates all matters regarding school health services. The school education laws require provision of healthy school environment and health teaching. The National Government gives various directives based on these and other laws. Each prefectural Government is responsible for carrying out the ordinances.

10. *CEYLON.*—In Ceylon, the school health work is the joint responsibility of the Departments of Education and Health. The medical inspection, the correction of defects and the control of communicable diseases are attended to by the Department of Health. The Education Department and the school staff provide sanitary facilities and conduct health education. A Central Organisation—joint school health committee consisting of representatives of both the Health and Education Departments—co-ordinates the work and enunciates central policies.

Recommendations of Expert Committee of the World Health Organization on Administrative Set-up for School Health Services

11. In considering what would be the best frame-work of organization and administration into which health services for children of school-age

can be fitted, the Expert Committee on School Health Services of the WHO (1950) put forward the following guiding principles :

(*i*) Great variation in forms of administration is possible, and no standard frame-work can be devised to meet the circumstances of all countries.

(*ii*) Efficiency of the school health work will ultimately depend less upon the particular framework of administration than upon the manner in which the school health teams discharge their responsibilities and bring about a material understanding in cooperation with all other authorities who share services related to the school work.

(*iii*) In view of the importance of this co-operative relationship, the Committee stressed the great advantage which will be derived from integrating the administration of the school health service with the administration of the general community health programme. This can be achieved when the medical officer in charge of community health is also the school medical officer and, no doubt, in other ways.

(*iv*) The school medical officer (and other staff in the school health team) must have a definite assignment which will place him in a position of responsibility towards the maintenance of health in the school. He must not in any circumstances be regarded as an occasional visitor with no continuing responsibility.

(*v*) Sound relationships between the school health team and the family and the community (of which the school is a part) will be furthered when the nurse serving the school serves also the general health needs of the community. Where this is impractical, administrative provisions between departments should permit the nurse working in the school to share in the work and professional meetings of the community health workers.

(*vi*) A school health service should serve all children of school-age in a defined community and, therefore, should include children attending private schools.

(*vii*) Health services for children of school-age cannot be isolated from community health care in general; this is particularly true of maternal and child health activities. A good school health service, therefore, will be correlated with the child services for the pre-school years through some such means as having the school health staff work also in the maternal and child health service. The same principle is true for the period after leaving school, and the school health service should be correlated with such general health services as industrial hygiene and appropriate clinics.

(*viii*) Reference was made earlier to the desirability of school health councils or committees. Their organisation can bring together all in an area who are interested in school health—parents, industrialists, and social workers, in addition to the more directly involved professional personnel. In smaller communities, where the school is a centre of community activity, the village health committee may well function as a school health committee.

(*ix*) The committee stressed the importance of the total and continuing child health concept. Pre-natal work, infant welfare centres, pre-school health services, school health work, and health supervision of adolescents should be guided by the same medical administration, in order to obtain uninterrupted continuity in the supervision of the individual during the whole period of growth and development. Where, however, it is administratively impossible or inadvisable to follow this procedure, responsibility must be assumed by the different agencies involved so to coordinate their work that the health guidance of any child is not fractionized.

Organisational and Administrative Set-up Recommended for School Health and School Meal Programmes in Our Country

12. The success and efficiency of school health and school meal or, for that purpose, any other programme depends largely on sound, coordinated and effective administration. We feel that it would be necessary to develop some arrangements in which there is greater coordination and better understanding between those who administer Health, Education, Food and Agriculture and Community Development Departments from the national to the field levels.

13. We have already pointed out that the community and the voluntary organisations should play an important role in the school health programme and especially in the provision of school meals. The school meal programme should be a people's programme with the support of Government. We are convinced that the public are quite eager to shoulder the responsibility of school meal and school improvement projects. This should be one of the important projects for public participation under the Third Five Year Plan. In fact, in view of the limited resources available for the social services at present, the mid-day meal programme primarily hinges on the cooperation and participation of community and voluntary organisations.

14. Any organisational set-up at the national, state or other levels should, therefore, have to be such as would recognise and mobilise voluntary efforts of the community and agencies concerned in the health and well-being of the children. It should also facilitate maximum utilisation of limited resources of every department. We, therefore, recommend that school health programme should be the joint responsibility of the departments mentioned above, the voluntary organisations, panchayats and the community.

15. The health of the child is a part of the health of the community. We have stated earlier that the school health services should be an integral part of general health services. They should complement and supplement each other. As the general health services are conducted through the Health Department in the States, the medical officer or the health officer of a particular area should also have responsibility in carrying out school health services of that area. The local health organisation should supervise and assist the school administration in maintaining healthful environment of the school.

16. The general responsibility about the welfare of the child when he is in the school lies with the school administration. Usually, the school buildings and the physical facilities are provided by the Education Department and the local bodies. We are of the opinion that the school meal

programme should be the responsibility of the local school administration and the education authorities. The Headmaster or the Principal of a particular school will be responsible for the implementation of school meal service with the assistance of the local committee. The latter should be responsible for raising the community share of resources.

17. We recommend the following administrative and organisational set-up at the national, state and local levels. Such a set-up would stimulate increasingly co-operative endeavours of the community, voluntary organisations and other official agencies related to the health services of the children.

At the Centre

18. At the Centre, there should be a National School Health Council. Such a Council will facilitate cooperation and coordination of many individuals and groups that are concerned with the health of the children. It should provide a simple and orderly way of bringing together representatives of the community, professional and voluntary organisations and official agencies both at the Centre, and States so that they may share in planning and implementing school health services. The Council should be the Chief Advisory Co-ordinating and Supporting Body appointed by the Government of India, Ministry of Education.

Constitution of the Council

19. The National Council should comprise 40 members representing the following :

Non-officials and experts nominated by the Govt. (Experts should be drawn from the fields of Health, including Nutrition and Education)	7
Lok Sabha	2
Rajya Sabha	1
Ministries of:	
Health	2*
Education	2*
Food & Agriculture	1
Co-operation & Community Development	1
Finance	1
Central Social Welfare Board	1
Planning Commission	1
Professional Organisations (Nominated by the Government)	3
Welfare Organisations	3
State Governments	15
TOTAL	40

The Chairman of the Council should be a non-official with knowledge and experience in the subject. The tenure of the Council should be for a period of three years.

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*Secretary and the Technical Adviser or their representatives.

Functions of the Council

19. The functions of the Council should be :

(*i*) To assist in the formulation of national school health policies and to review the same periodically;

(*ii*) To encourage and assist the States in the establishment of school health services and school meal programme and to co-ordinate them;

(*iii*) To initiate and guide studies, research and training on problems connected with school health administration and services;

(*iv*) To assist in the formulation of standards for school health services and to lay down minimum uniform procedures;

(*v*) To advise the Central Government in the allocation of grants and other resources to the States for school health programmes;

(*vi*) To take steps to enlist the active participation of the people in the implementation of the programme; and

(*vii*) To consider the problems raised by the State Advisory Committees, Ministries or individual members.

The recommendations and advice of the Council should ordinarily be accepted by the concerned Ministries, who would decide on the policies to be followed to implement the recommendations. Since the Secretaries of the Ministries or their representatives will be the members of the Council, it is expected that the implementation will be quite prompt and effective.

Office for the Council

20. In order to perform the above functions which also include research and training, it is necessary for the Council to have an appropriate office with a permanent full-time Secretary of or above the rank of a Deputy Secretary. The Secretary should be assisted by 3 part-time technical Joint Secretaries drawn from the Ministries of Health, Education and Food and Agriculture.

21. We recommend that there should be a new division in the Ministry of Education for giving effect to the programmes formulated by the Ministry on the recommendations of the National Council with regard to school meal and health education. The head of the division should be of the status of a Deputy Education Adviser. Similarly, there should be a Division of School Health Services in the Ministry of Health with an Assistant Director General of Health Services as its head. The responsibility regarding the supply, storage and distribution of food should lie with the Food and Agriculture Ministry who should have an appropriate set-up at the Centre for this purpose. The details regarding the implementation will be worked out in the respective divisions. As the Chiefs of these divisions will be the Joint Secretaries of the Council, it is hoped that there will be maximum co-ordination in the implementation of the policies decided upon.

It is hoped that the Ministries of Railways and Transport and Communications will give the required assistance in regard to the movement of food articles required for the school meal programme.

State Level

22. Each State should also have State Council of School Health. We recommend that the Chairman of the State Council should also be a non-official with knowledge and experience in school health. He should be nominated by the State Government in consultation with the Central Council. The functions of the State Councils will be :

(*i*) To advise the State Government in all matters related to school health services and school meal programme;

(*ii*) To assist the State Government in the adaptation of the national policies and programmes to suit the local conditions;

(*iii*) To help in the co-ordination of the activities of different official and non-official agencies dealing with school health;

(*iv*) To encourage and channelise public contributions towards school meal programme and to enlist active cooperation from the public; and

(*v*) To review periodically the effectiveness of the programme and to help in overcoming the defects and bottlenecks that arise in the implementation.

23. The State Council may comprise about 25 members representing various organisations and professions and legislature as suggested for the National Council. One representative of the National Council will be included in the State Council besides the State's representative on the National Council who will be automatically in the State Council. The Director of Education and the Director of Health Services should be alternatively the Secretary and Joint Secretary respectively. They will be assisted by the Chiefs of the School Health Bureaux in the Health Department and the School Meal and Health Education Sections in the Education Department. The responsibility of State Ministries of Education, Health, Food and Agriculture, and the Community Development will be similar to that of the Union Ministries. The implementation of the programme will be carried out by the Department of Education and Department of Health through the Bureaux set up especially for this purpose. The Chiefs of the Sections of Bureaux, we recommend, should be of the status of not less than that of Assistant Directors of Health Services and Assistant Directors of Education. The State Health Education and Nutrition Organisations will provide the technical assistance and guidance in their respective fields.

District Level

24. We are envisaging School Health and School Meal Committees in each district throughout the country as sub-committees at the District Development Councils. These District Committees would include representatives of the Departments of Health, Education, Agriculture and Community Development, the professional and voluntary associations and Welfare Organisations. The Committee will be responsible for the preparation of long-term and short-term projects in accordance with the State school health policy. They will outline block school health programmes, ensure co-ordination and efficiency, encourage and obtain public contribution and pool and distribute the resources. We consider that the major aim of the Committee should be to bring about wide awareness of the

school health services among the community by publicity and education. Such a Committee will have great potentialities for securing community support and action. The District Health Officer and the District Education Officer should work as Joint Secretaries of the Committee.

25. The District Health Officer (or the officer assisting him in school health) will be responsible for organising and conducting school health services and the District Education Officer (or the officer assisting him in school meal and health education) will be responsible for carrying out the school meal and health education programme in the schools of the District. The Food and Agriculture Officer will look after the storage and distribution of articles of food required for school meal.

26. As the health activities increase in the district, the supervisory responsibilities of the District Health Organisation will also increase tremendously. If the school health service has to yield the desired result, it requires prompt and continued supervision. In order to undertake this responsibility, the District Health Organisation should be strengthened appropriately. We consider that a public health nurse, a health educator, senior sanitary inspector and a maternal and child health officer should be added to the District Health Organisation. Supervision of school health programme should form one of their responsibilities besides other district health work. Similarly, District Education Organisation should also be strengthened.

Block Level

27. For the proper operation of the programme, there should be School Health Committees at the block level. These Committees could be sub-committees of the Block Development Council. The real operation of the programme actually starts from the block level. The School Health Committee will have the medical officer of primary health centre and the inspector of schools as the Joint Secretaries. It will include the inspector of agriculture, block development officers, representatives of Panchayat and voluntary organisations. The functions of the Committee broadly should be : outline of local school health plans, supervise implementation, enlist public participation and collect and distribute donations.

N.B.—States where designation of these officers who do these functions is different, the designation may be different in different States and a corresponding officer may be substituted.

Village Level

28. In the scheme of democratic decentralisation, the school forms one of the basic institutions. All these three organisations will have to play a very vital role in the effective operation of the local school health programme. We, therefore, recommend that local school health committee of the Village Panchayat should be constituted including some community leaders interested in school health, local health staff (or representatives from the primary health centre) with senior Headmaster as the Secretary. The functions of the local committee should be : planning, implementation and supervision of school health programme, enlisting active community participation, collecting donations in money or kind, storing and distribution of food articles. Where the Food and Agriculture Department have no arrangements for storage sometimes in block and in the village level, these arrangements should be made by the Community Development

authorities. The actual operation of the programme especially of the school health committee should meet at regular and frequent intervals. At health centre, *viz.*, medical officer, public health nurse, or health visitor, auxiliary nurse-midwife, health inspector and the headmaster and class-teacher of the school concerned. For carring out the school meal and health education programmes, the headmasters of the respective schools will be mainly responsible. They will be supported by the school health committee, village panchayat, community development organisation, specially the Mukhya Sevika, Gram Sevikas, Gram Sevaks and Mahila Mandal.

29. Only maximum team work at this level will yield satisfactory results. All persons who work in the programme must be fully aware of the objectives of the different parts of the school health programme and of their particular responsiblities in various activities. The local school health committee should meet at regular and frequent intervals. At these meetings, the progress of the programme should be reviewed, shortcomings noted and the ways to remove these should be found out. The Committee should mobilise the community to make the programme continuous and self-supporting.

CHAPTER XI

SUMMARY OF IMPORTANT RECOMMENDATIONS

School Health Services

1. School health services should form part and parcel of the general health services of the community.

2. All children should be provided wtih school health services for the proper development of their personalities and for their well-being. However, with the limited resources at our disposal, it is not possible to bring all children under the scheme at once. For the present, school health services may be made available to primary school children, *i.e.*, children between 6—11 years.

3. It would be a mere waste of time and money to continue the present system of medical inspection of children. The unsatisfactory results of the present school health services are attributable to : (a) carrying out of the medical inspection in a perfunctory manner; (b) the non-availability of remedial facilities; and (c) lack of follow-up even in the cases of those declared as defective.

4. The functions of the school health services should be the provision of health measures both preventive and curative. These should include the detection and treatment of defects and the creation and maintenance of a hygienic environment in and around the school. It should also provide measures for promoting positive health including the provision of supplementary food to improve the nutritional status of children, and health education. The school health services should also provide for the care of eyes, ear, nose and throat and of teeth.

5. All newly admitted children should have medical examination first and then again after four years. The limited facilities available today do not permit medical examination at frequent intervals. Children who show serious conditions at entrance and those who show signs of defects and illness later, should have frequent examinations and follow-up.

6. The medical examination of each pupil should be thorough. Parents should be persuaded to be present during the medical examination of their children.

7. Adequate space should be made available for the medical inspection of school children.

8. Securing facilities for prompt treatment is one of the main functions of the school health service. Defects which can be treated at primary health units should be treated there and school health clinics should be held once a week.

9. Those which call for specialised treatment should be referred to nearest hospitals and transport provided for this purpose. Additional wards for children should be set up with the existing or new hospitals. The medical specialists should visit the primary health units periodically.

10. Prevention and control of communicable diseases in schools should be the responsibility of public health authorities. Care should be taken to promptly detect and isolate cases of communicable diseases. The class teacher, if properly trained, can spot out common communicable disease in his class.

11. Emphasis should be laid on compulsory primary and re-vaccination against smallpox immediately. Immunization against diphtheria, whooping cough and tetanus should be made compulsory in the immediate future. Steps should be taken to manufacture the vaccine in India so that it may be supplied free. Steps should also be taken to immunize against polio in certain areas of the country where its incidence is reported. In areas where epidemics have known to occur with regular periodicity, it would be necessary to undertake such preventive measures as a routine.

12. In order to carry out the comprehensive school health service, it will be necessary to increase the staff of the primary health centre by at least one additional medical officer and four auxiliary nurse-midwives. But under the present circumstances, it will not be possible to achieve this ideal in the immediate future. Until such time as doctors become available in required numbers, one additional auxiliary nurse-midwife should be added to each centre to carry on the programme.

13. To attract the medical and health personnel to work in rural areas, certain incentives, such as better salary scales, facilities for housing, arrangement for schooling of their children, attractive leave and travel facilities, periodical refresher courses in teaching institutions and the grant of advance increments to those who work in rural areas should be given.

14. With adequate training in health education and school health services, it should be possible for the teacher to undertake certain functions connected with school health services such as : (a) observation of children with a view to spot out any deviations from normal health; (b) recording of height and weight and simple testing of vision and hearing; (c) maintaining of health records of children; and (d) giving First-aid.

15(a). The medical history and records of all students should be kept on cards filed in the schools. For the purpose of comparison, it will be necessary to develop uniform types of recording system containing relevant basic data.

15(b). Child counselling units in schools and child guidance clinics in the local health departments should be established to start with in metropolitan cities where technical personnel and resources may be easily available for providing such services.

16. Till such time as the doctors and other trained personnel are available in adequate number for services in rural areas, school health services, as an interim measure, may be carried out in only a part of the area covered by the primary health unit. It should be possible for one medical officer to look after school health programme in a limited area covering about 2,000 children as against 6,000 children in the entire area.

17. In addition, four districts in each State may be selected during the Third Plan and school health services provided to all the children in the age-group 6—11.

18. School health services may be provided in all the schools in corporations and muinicipalities. In any case, all the children studying in schools located in slum areas of cities and towns must be covered.

19. During the Fourth Plan period, school health services should be provided to : (a) all children in the age-group 6—11 in rural and urban areas; and (b) the children of middle and high schools in areas where facilities exist.

School Meal

20. The primary aim of the school meal programme should be to improve health and encourage sound dietary habits among children.

21. The school meal should provide approximately one-third of the dietary and nutritional requirements of children.

22. The school meal should be based on cheap nutrition and locally available foods. A sample menu may comprise a minimum of : cereals and millet—2.5 oz.; pulses—1 oz. (or pulses 0.5 oz. and protein rich supplement 0.5 oz.); leafy vegetables—1 oz.; non-leafy vegetables—1 oz.; oil—¼ oz.; and condiments and salt. This menu would cost roughly 10 nP. The cost of providing such a meal to each child would be roughly 12 nP per day including the cost of preparation of meals and other incidental charges of 2 nP.

23. As there is shortage of milk supply, at present, in our country, it should first be given to the infants, expectant and nursing mothers and pre-school children. There is, however, likelihood of some surplus milk which will be available to school children because for the next few years the majority of pre-school children cannot be reached as the number of institutions through which they can be reached is limited. It will thus be possible to provide milk to the lower age-group of 6—7 years and possibly to others in the primary school age-group.

24(a). School meal for children should include the Multi-purpose Food or other locally available protein-rich foods as a supplement. Plants for the manufacture of Multi-Purpose Food produced at the Central Food Techonological Research Institute, Mysore, should be set up in various parts of the country.

24(b). The catering colleges and catering centres planned to be set up by the Food and Agriculture Ministry to train personnel for catering establishments and prepare different types of delicious and nutritious foods should also undertake to prepare meals for being distributed in the schools located in the surrounding areas. They should also serve as modern central kitchens for the school meal programme and to popularise the use of inexpensive and nutritious food articles.

25. The potentialities in respect of production of fish and fish-meal which can constitute a part of school meal, should be explored. Facilities for improved haulage, quick refrigerated transport and cold storage of fish should be provided.

26. In every junior or senior basic school, wherever land is available, vegetables should be grown. Such fresh vegetables should constitute a part of school meal. Such facilities should also be provided at least in a

few other schools in each of the community development blocks. Extension Division of the Agricultural Department should help the schools by giving seeds, implements, fencing material and technical guidance.

27. Expanded nutrition programmes similar to the one recently started in Orissa, should be taken up in other States. These projects should include the production and distribution of nutritionally valuable foods to vulnerable segments of population. They should also include nutrition education of people and training of personnel.

28. Every school should be provided with protected water supply and facilities for drainage; sanitary environment; facilities for storage; preparation and distribution of food; adequate space for feeding of children; and sanitary disposal of garbage.

29. It is necessary that the Government should support the school meal programme besides the contribution of the community at the rate of 50 per cent of the total cost.

30. For psychological and social reasons, there should be no discrimination between children from rich families and poor families in regard to serving of school meals. The parents from well-to-do families will naturally contribute more towards the community's share of the programme.

31. All children in the age-group 6—11 should be provided school meal during the Third Plan period. It is estimated that about 50 million children would be in Primary Schools by 1965-66. The number of children who may actually attend school, on most of the days, however, would be 40 million. It should not be difficult to provide meal to these 40 million children during Third Plan period if both internal resources and external assistance are utilised.

32. Any proposal about the external assistance towards this important programme, in the shape of food articles, should be favourably considered. The acceptance of external aid is suggested as an interim measure only. It should be possible to finance school meal programme through our own resources, as and when there is increased community participation, improvement in the internal resources, and in the food production in the country.

33. In case external assistance and community participation on a higher scale are not forthcoming in the early stages, school meal should be provided to roughly 14 million children during the Third Plan period. Apart from the community contribution in cash or kind, which is reckoned at 50 per cent of the total expenditure, the Government share on this programme would be roughly Rs. 42 crores. The remaining spillover will have to be carried over to the Fourth Plan period.

34. During the Fourth Plan period, the scheme of providing school meal should be extended to cover children of the middle schools also along with all the children of primary schools, who would have been covered by the end of the Third Plan period. Wherever possible, the students of high schools and colleges should also be covered.

Pre-School Child

35. A comprehensive health and welfare service for pre-chool children should be introduced.

36. In order to provide such service, the existing institutions should be strengthened, and a machinery through which the activities of different social welfare organisations could be coordinated for undertaking programmes for improving nutritional status of pre-school children should be evolved.

37. The first priority in regard to milk supply should be given to expectant and nursing mothers, infants and pre-school children.

38. In the past, large quantities of milk powder made available by UNICEF, have been left unused. The pre-school children in particular and even school children in many parts of the country did not receive milk due to unsatisfactory storage and distribution of milk powder. Immediate steps should be taken to remedy this situation.

39. Services of 'Balwadis', 'Mahila Samitis', maternity and child welfare centres, health centres, clinics and nursery schools, the pre-primary schools, pediatric centres of hospitals and social welfare and similar organisations should be utilised for the distribution of milk to pre-school children.

40. There is need to evolve suitable diets for pre-school children. This can be achieved by the judicious combination of the available foodstuffs which are rich in protein and other protective nutrients. It is necessary to produce such products on a regional basis.

41. It is estimated that, at present, it is possible to reach only 15 lakhs of pre-school children. They would require about 51 million lb. of powder milk in a year if every child is given 1½ oz. of milk powder per day. It is hoped that milk powder and vitamin supplements needed for distribution to these children would be made available by UNICEF and other agencies. The total cost of distributing 51 million lb. of milk powder to 15 lakhs of children would be roughly Rs. 3.4 crores per year.

School Health Education

42. Health education should be included as a part of general education in the primary, middle and secondary schools. The Basic Education system, as expounded by Mahatma Gandhi, contains the essential ingredients of a school health education programme.

43. Steps should be taken to keep the school environment in a sanitary condition. The school administration should provide the right environment to promote health, prevent disease and furnish opportunities to children to practise good health habits.

44. School authorities should employ teachers who are in sound health and should take steps to see that conditions under which they are working are conducive to healthy living.

45. The health personnel should assist the teacher in carrying out his health education responsibilities. They should also help parents to provide facilities for the child to practise at home the health habits learnt at school.

46. The State Administration should play a vital role in the effective implementation of the school health education programme and in setting up standards in the State in accordance with the national policies.

47. The State Administration should take immediate steps to publish text-books on health education and to have health lessons included in other appropriate text-books. Books and teaching aids should be kept up-to-date with scientific health information and adopted to the developmental level of pupils for whom they are intended.

48. The Central Health Education Bureau, and the National Institute of Audio-visual Education in cooperation with appropriate advisers in various fields of education should develop "type" instructional material and teaching aids for use in school health education programme. These material should serve as guides for the States to develop their own aids and material.

49. In primary grades, the emphasis should be placed on practising healthful living. The teaching should be practical and related to the pupil's past experience, his home conditions and his present needs.

50. The learning experiences in middle classes should be 'life-centered' rather than 'book-centred'. In schools where there are special subject teachers, the health content of the curriculum may be correlated with the specific subjects taught. Where the class teacher is responsible for all teaching in the class, he should be responsible for the health teaching as well.

51. The health curriculum for secondary schools should be carefully planned so as to avoid unnecessary duplications and serious omissions, with appropriate health topics being incorporated within the respective special subjects. Wherever facilities exist, health should be included in the list of optional subjects offered.

52. The draft syllabi on health education for the children of the age-groups 6—11, 11—14 and 14—17 prepared by the Committee on Health and Nutrition Education constituted by the Ministry of Education should be adopted for health teaching in schools with slight modifications to suit local needs.

53. The School Health Education Section in the Central Health Education Bureau and the Student Health Education Units in State Health Education Bureaux should be developed to provide leadership in different aspects of School Health Education.

Training, Studies & Research

54. The training programmes of the existing orientation and other training centres for doctors should be critically evaluated and re-organised to equip the trainees passing through them to play their role in providing health care with understanding and faith in the preventive services.

55. The existing departments of hygiene run by part-time teachers in many medical colleges should be upgraded to the departments of social and preventive medicine. Medical students should have sound background in the social and preventive medicine in their under-graduate curriculum.

56. The Indian Medical Council and Universities should examine the curriculum of social and preventive medicine with a view to provide sufficient emphasis on the health of the school child.

57. The field practising centres attached to the medical colleges should be provided with the required staff and equipment to facilitate provision of

experience in the organisation and implementation of school health services.

58. Steps should be taken to arrange short-term courses and seminars with a view to provide adequate training to doctors in applied nutrition. Nutrition education should receive special attention in the teaching of different subjects in medical colleges.

59. A short specialised course in school health service should be provided by the All-India Institute of Hygiene and Public Health for those who will be in charge of administration of school health. Similar courses should be organised either at the field training centres attached to the medical colleges or at the proposed health demonstration districts.

60. The syllabus for the training of auxiliary nurse-midwives should be re-examined by the Indian Nursing Council with a view to include the subject of school health in the curriculum besides fundamentals of healthful school environment, principles of nutrition and treatment of minor ailments. The present curriculum of training of health visitors should also be reviewed with a view to see that sufficient emphasis is placed on the practical aspects of school health services.

61. For the training of sanitary inspectors, the curriculum formulated by the Director General of Health Services should be followed in all the sanitary inspectors' training courses.

62. In teacher training programmes, health education and school health should be a required part of training. The teacher should have the knowledge of the growth and development of children, personal health, community health, school health practices and methods of health education.

63. One teacher in each teacher training college or institution should be made responsible for co-ordination of courses and activities in health education. All such teachers should receive special training in health education and in principles and practices in school and community health. Health education at the post-graduate level should be provided at the National Institute of Education and in the zonal institutes being set up by the Ministry of Education and at the post-graduate centre for health education to be developed by the Ministry of Health.

64. For the teachers who are already in service, special short-term courses should be organised in the local school organisations with the technical assistance from the health personnel. The Central and State Health Education Bureaux should guide and assist in the training of teachers in health education.

65. Short-term orientation courses should be organised by training colleges or by local administrations to provide in-service training on health education to administrators and education officers.

66. Future school health and school meal policies and programmes should be developed from the results obtained through scientific surveys and studies. Studies and research are quite essential for making school health programme efficient, effective and economical.

School Environment

67. School buildings should be simple, safe, attractive and sanitary. In selecting the location of a school, consideration should be given to suffi-

ciency of space for buildings and playgrounds, availability of safe water supply, possibility of drainage and sanitation. The surroundings should be attractive and protected from traffic hazards. The construction and maintenance of school buildings should be in accordance with the rules formulated by the States.

68. Every school building in urban areas where public water supply is available should have water supply connection and adequate number of taps. In rural areas, an independent water supply system is desirable for each school. If that is not posible, earthen pitchers properly covered and with taps fixed to them should be provided.

69. In urban areas wherever drainage facilities exist, these should be extended to all schools. In rural areas, drains should be constructed for the removal of waste water.

70. Wherever drainage facilities exist, there should be hand-flushing latrines connected to sewers, if feasible, or to septic tank disposal systems. In other cases, hand-flushing latrines as per the type design approved by the Central Public Health Engineering Organisation of the Ministry of Health should be adopted. Where water is scarce, a bore-hole latrine should be used with a simple squat plate having an aperture which should be covered after use.

71. The garbage should be disposed of according to the methods approved by the health authorities.

72. The sale of food by hawkers in and around the school should be prohibited.

School Health Administration

73. The success and efficiency of school health and school meal programme depends largely on sound, co-ordinated and effective administration. There should be greater understanding and cooperation between the health, education, agriculture and community development authorities at all levels. They should jointly assume responsibilities for policies and procedures for rendering these services.

74. As this should be one of the important projects for public participation under the Third Five Year Plan, the non-officials and the community should be closely associated in shouldering the responsibility for the programme.

75. The medical officer or the health officer of a particular area should have responsibility in carrying out school health services of that area. The local health authority should supervise and assist the school administration in maintaining healthy environment of the school.

76. The school meal programme should be the responsibility of the local school administration and the education authorities. The Headmaster or the Principal of a particular school will be responsible for the implementation of school meal service with the assistance of the local committee. The latter should be responsible for raising the community share of resources.

77. Any organisational set-up at the national, state or other levels should, recognise and mobilise voluntary efforts of the community and agencies concerned in the health and well-being of the children. It should

also facilitate maximum utilisation of limited resources of every department.

78. At the Centre, there should be a National School Health Council. Such a Council will facilitate co-operation and co-ordination of many individuals and groups that are concerned with the health of the children. It should provide a simple and orderly way of bringing together representatives of the community, professional and voluntary organisations and official agencies both at the Centre and States so that they may share in planning and implementing school health services.

79. The National Council comprising 40 members including a non-official as Chairman should be the Chief Advisory Co-ordinating and Supporting Body appointed by the Government of India, Ministry of Education. Its tenure should be 3 years.

80. The Council should have a permanent full-time Secretary who will be assisted by three part-time technical Joint Secretaries drawn from the Ministries of Health, Education and Food and Agriculture.

81. There should be new divisions in the Ministry of Education, Health and Food and Agriculture for giving effect to the School Health Programme, formulated on the recommendations of the National Council.

82. Each State should have a State Council of School Health Comprising 25 members with a non-official as Chairman. The Director of Education and the Director of Health Services should alternatively be Secretary and Joint Secretary of the Council.

83. There should be a 'school health bureau or section' in the Health Department and 'school meal and health education bureau or section' in the Education Department in each State to implement the programme.

84. At district level, School Health and School Meal Committees should be set up as sub-committees of the District Development Councils. The District Health Officer and District Education Officer should alternatively be the Secretary and Joint Secretary of the Committee. The District Health Officer should be responsible for organising and conducting school health services and the District Education Officer for school meal and health education programmes. The District Food and Agriculture Officer should look after the storage and distribution of food.

85. The district .health and education organisations should be strengthened appropriately to plan, implement and supervise this additional work.

86. There should be School Health Committees at the block level. These committees could be sub-committees of the Block Development Council. The medical officer of the primary health unit and the inspector of schools should be the Secretary and Joint Secretary of these Committees.

87. At village level, local school health committees should be constituted. These should include representatives of the village panchayat, representatives of welfare organisations, if any, community leaders interested in school health and the local health staff, with the senior headmaster as the Secretary. These committees should mobilise the community to make programmes continuous and self-supporting.

L15DGofHS/61—2,000—6-6-62—(Sec. II)—GIPF.

SCHOOL HEALTH COMMITTEE

1960-61

REPORT

PART II

सत्यमेव जयते

MINISTRY OF HEALTH
GOVERNMENT OF INDIA

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APPENDIX A

(*As amended* vide *Health Ministry's letter No. F.* 2-204/58-*PH*(*Pt.*) *dated the* 25*th February* 1960)

No. F. 2-204/58-PH(Pt.)

Government of India,

MINISTRY OF HEALTH.

New Delhi-2, *February* 16, 1960.
25

FROM

Shri T. V. Anantanarayanan,
Under Secretary to the Govt. of India.

To

The Director General of Health Services,
New Delhi.

SUBJECT.—*Health Survey and Promotion of Nutrition among School children.*

SIR,

I am directed to say that the Government of India have decided that a Committee should be set up with immediate effect for the purpose of assessing the present standards of health and nutrition of school children and to suggest ways and means of improving them. The composition of the Committee and its terms of reference will be as follows :—

Composition of the Committee

(1) Shrimati Renuka Ray, M.P., 43 Western Court, New Delhi.	*Chairman.*
(2) Shrimati Tara Cherian, 5 Victoria Crescent, Egmore, Madras.	*Member.*
(3) Dr. N. B. Kabbur, M.B.B.S., Malmaddi, Dharwar (Dt.).	*Member.*
(4) A representative of the Ministry of Education.	*Member.*
(5) Dr. M. Swaminathan, Assistant Director (Dietetics) Central Food Technological Research Institute, Mysore (Representative of the C.S.I.R.).	*Member.*
(6) Dr. (Mrs.) R. P. Devadas, Joint Director, Dte. of Extension, Ministry of Food & Agriculture (Representative of the Min. of Food & Agriculture).	*Member.*

(7) Dr. C. Gopalan, M.D. (Madras), Ph.D. (London), Deputy Director, Nutrition Research Laby., Hyderabad. *Member.*

(8) Dr. V. Ramakrishna, Assistant Director General of Health Services, New Delhi. *Member-Secy.*

Terms of Reference

(i) To examine the present position of school health programme in the country in all its aspects (excluding physical education, games and sports) *e.g.*, prevention of diseases, medical care and follow-up service, nutrition, health education, healthy environment, etc. of the students at all stages of education and to suggest—

(a) further survey of studies if required ; and

(b) how the work of various agencies such as medical, social and welfare associations can be co-ordinated to assist in the promotion of health of school children.

(ii) To examine studies and surveys so far made to assess the nutrition standard of school children and to indicate—

(a) further survey or studies needed in any specific areas ; and

(b) to give concrete suggestions to institute appropriate measures to improve standards of nutrition among school children recommending, *inter alia*, ways and means for financing and organizing such programme.

(iii) To examine and recommend the possibility of entrusting Primary Health Centres and other organisations for conducting a comprehensive and realistic school health programme in association with the local education administration. The recommendations should include measures to develop an effective school medical service suitable to the country.

(iv) To examine the present facilities available for promoting nutritional standards of pre-school children and to suggest practical measures to improve the present position.

2. The Committee should submit its report to the Government of India within a period of three months.

3. The grant of T.A. and D.A. to non-official members will be regulated under the provisions of S. R. 190 as amended from time to time. The non-official members will, for this purpose, be treated as Grade I Officers. The grant of T.A. and D.A. to Shrimati Renuka Ray, M.P., will be governed by the provisions of the Ministry of Finance O.M. No. 3031-E(Coord)/59, dated the 3rd October, 1959.

4. The expenditure involved will be met from the sanctioned grant under "39—Public Health Demand No. 44—Public Health—A. 6 C. H.E.B.—A.6(4) Other Charges" for 1959-60 and from such grant as may be voted under the same head in 1960-61.

APPENDIX A-I

CENTRAL HEALTH EDUCATION BUREAU,
KOTLA ROAD, TEMPLE LANE.

FROM

Shrimati Renuka Ray,
Member of Parliament,
Chairman, School Health Committee.

New Delhi-1 *May*, 1960.

DEAR FRIEND,

The Ministry of Health, Government of India have set up a committee to assess the present standard of health and nutrition of school children and suggest the ways and means to improve them. On behalf of the Committee, I am forwarding a copy each of the questionnaire and the terms of reference to elucidate your views on the various aspects of school health. The questionnaire consists of a number of sections. We shall be grateful if you will kindly reply to all, or any of the sections in which you are interested and can supply us with the information required.

The Committee is anxious to send in its report at an early date. The reason for this is that the provisions for the Third Five Year Plan will be drawn up by the Planning Commission in the very near future and our recommendations would only be useful if they can go in time for consideration. Under the circumstances, I shall be grateful if you would kindly treat this as URGENT and send us your reply to this questionnaire by the end of June. I am fully conscious that the time given is very short. At the same time, I do hope that you will be so kind as to help us so that our work might be useful.

I know that you are interested in a subject which so vitally affects the health of the children of our nation.

I feel sure that we can count upon your active co-operation. Kindly send the reply to the Secretary of our Committee, Dr. V. Ramakrishna, Director, Central Health Education Bureau at the address given above.

Yours sincerely,

Renuka Ray.

Terms of Reference

(i) To examine the present position of school health programme in the country in all its aspects (excluding physical education, games and sports) *e.g.*, prevention of diseases, medical care and follow-up service, nutrition, health education, healthy environment, etc. of the students at all stages of education and to suggest—

(a) further survey of studies if required ; and

(b) how the work of various agencies such as medical, social and welfare associations can be co-ordinated to assist in the promotion of health of school children.

(ii) To examine studies and surveys so far made to assess the nutrition standard of school children and to indicate—

(a) further survey or studies needed in any specific areas ; and

(b) to give concrete suggestions to institute appropriate measures to improve standards of nutrition among school children recommending, *inter alia*, ways and means for financing and organising such programme.

(iii) To examine and recommend the possibility of entrusting Primary Health Centres and other organizations for conducting a comprehensive and realistic school health programme in association with the local education administration. The recommendations should include measures to develop effective school medical services suitable to the country.

(iv) To examine the present facilities available for promoting nutritional standards of pre-school children and to suggest practical measures to improve the present position.

MINISTRY OF HEALTH

GOVERNMENT OF INDIA

SCHOOL HEALTH COMMITTEE

QUESTIONNAIRE

1. General

1.1. Please furnish the following information as on January, 1960:—

	PRIMARY		MIDDLE		HIGH	
	No. of schools	No. of children	No. of Schools	No. of children	No. of Schools	No. of children
(a) In small villages (up to 5000 population).						
(b) In big villages and towns (5000 to 1,00,000 population).						
(c) In Cities						
TOTAL						

1.2. Do you consider that the following schould be included in a minimum School Health Programme?

(a) Environmental Hygiene.

1. Adequate space for school building, playground and garden, health services, etc. . . Yes No

2. Water supply	Yes	No
3. Latrines and Urinals	Yes	No
4. Ventilation and light	Yes	No
5. Improved floors in classrooms	Yes	No
6. Refuse disposal	Yes	No
7. Maintenance of building and surroundings	Yes	No

(b) Health Services.

1. Treatment for ill children and for those with defects	Yes	No
2. Immunization (Vaccination)	Yes	No
3. Routine medical examination for all children	Yes	No
(a) at entrance to school	Yes	No
(b) at entrance and at one other year		
(c) every year		
(d) others (specify)		
4. Follow-up on routine medical examination	Yes	No

(c) School Feeding

1. Provide free food for all children	Yes	No
2. Prepare food for all and provide free for those who cannot pay	Yes	No
3. Provide food for only those who show nutritional deficiency	Yes	No
4. Others (describe).		

(d) Health Instruction.

1. Health education should be a part of the syllabus to all schools	Yes	No
(a) Primary (Jr. Basic)	Yes	No
(b) Middle (Sr. Basic)	Yes	No
(c) Secondary	Yes	No
(d) Teacher Training	Yes	No
2. Health should be taught by every teacher	Yes	No
3. What is taught in the class should be put into practice by the children and teachers daily in the school	Yes	No

Is there any other item that you would like to be included?

1.3. Taking into consideration the existing conditions and resources of our country, which of the above items you think are urgently needed to be implemented in the next Five Year Plan?

2. School Environment

2.1. Are there any standards set for the school building and its surroundings in your State? If so, please give details or send a copy.

2.2. Do you think they are adequate? If not, please indicate what minimum standards you would like to prescribe for the following?

(a) Location of the school building.
(b) Space (class-rooms, etc.).
(c) Play areas and other open spaces needed.
(d) Water supply.
(e) Dispensing for drinking.
(f) Latrines (type and number).
(g) For preparation and serving of mid-day meals.
(h) Condition of floors.
(i) Ventilation and lighting.
(j) Drainage.
(k) Rubbish disposal.
(l) Hand washing facilities.

2.3. What arrangements do you suggest for the maintenance of sanitation in the schools in your area and who should be responsible?

2.4. In your area, are the children in schools actively associated in the maintenance of cleanliness of the school and its premises? If not, do you think that such a programme is necessary?

3. Health Teaching

3.1. It is assumed that health topics form a part of the theoretical teaching in every school.

What are the daily practical applications of this teaching in the school in your area?

3.2. What activities are used to stimulate students to do practical work?

(a) Competitions.
(b) Projects.
(c) Field trips.
(d) Demonstration.
(e) Teaching examples.
(f) Any other activities.

3.3. Does health education form a part of the training of teachers for :

(a) Primary (Jr. Basic) . . . . . . Yes No
(b) Middle (Sr. Basic). . . . . . . Yes No
(c) Secondary . . . . Yes No

3.4. Is there a student health committee in each school/the schools in your area? Or any other committee which deals with health?

3.5. (a) Should health be one of the core subjects? Yes No
(b) Should health be taught as a separate subject? Yes No
(c) Should it be integrated with other subjects? . Yes No

3.6. Should health be an examination subject for teacher training? . . . . Yes No

3.7. What provision is made for teaching the handicapped children?

(a) Physically handicapped.
(b) Mentally handicapped.

3.8. Should sex education be given in schools? If so, from what age? . . . . Yes No

4. Nutrition

4.1. What are the common nutritional deficiencies found among school children in your area?

(a) Pre-school.
(b) School.

4.2. Have any nutritional surveys been made in your area? If so, please furnish copies of reports.

4.3. Are there any school programmes in your State?

4.4. If the answer to the above is in the affirmative, please supply the following information :

(a) The number of schools and the number of children thus covered.

(b) The type of lunch provided and its cost per day.

(c) For how many days in the week the lunch is provided?

(d) How is the cost of lunch met?
  (i) By local bodies.
  (ii) By parents.
  (iii) By government subsidy.

(e) How is the co-operation from :
  (i) pupils.
  (ii) parents.

(f) What part do the teachers take in such a programme?

(g) Has the programme achieved any good results by way of improving—
  (i) the health of the children?
  (ii) the attendance in school?
  (iii) the knowledge of children on good food?
  (iv) children's behaviour and cleanliness, etc?

(h) Who actually supervises these programmes?

(i) What are your reactions on the feasibility of extending such a programme?

(j) If there are reports of programme, kindly furnish.

4.5. In how many schools the following facilities are available for vegetable gardens?

(a) Adequate land.

(b) Protective fence.

(c) Water supply.

4.6. In how many schools do vegetable gardens exist?

4.7. What do you consider are proper facilities required for school feeding?

(a) Space for preparing and serving.

(b) Equipment and type of chulha.

(c) Time and personnel needed for preparation and serving.

(d) (i) Washing arrangement. (ii) Fly proof device.

Pre-School Children

4.8. What are the common nutritional deficiencies found in pre-school children in your areas/in your school?

4.9. How many M.C.H. Centres, clinics (under the official, semi-official and voluntary) are there in your State?

	Official	Non-Official	Voluntary
(a) In villages (up to 5,000 population)			
(b) In villages and towns (5,000 to 1,00,000)			
(c) In cities (over 1,00,000 population).			

4.10. What is the average daily attendance of women and pre-school children at—

(a) village centres?

(b) town centres?

(c) city centres?

4.11. What is the basic staff at these centres?

4.12. What are the services rendered at these centres?

(a) Diagnostic.

(b) Follow-up advice.

(c) Curative.

(d) Preventive.

(e) Educational.

(f) Milk distribution.

4.13. What are the means used for education of parents?

(a) Talks to parents at the Centre.

(b) Group talks.
(c) Demonstrations.
(d) House visits.
(e) Others (please specify).

4.14. In your opinion, what is the best way of rendering preventive and educational services through these centres with regard to pre-school children.

5. Health Appraisal

5.1. What do you think are some of the major defects found among school children in your school/schools in the area?

5.2. Which of the following appraisal procedures do you think can be carried out for school children in your school/in your area.

(a) Taking health history. . . . . . Yes No
(b) Observation (by teacher) for signs of defect or illness. . . . . Yes No
(c) Taking weight and height. . . . . Yes No
(d) Giving vision test. . . . . . Yes No
(e) Giving medical examination. . . . Yes No
(f) Giving dental examination. . . . Yes No
(g) Giving psychological examination. . . Yes No
(h) Others (specify). . . . . .

5.3. What should be the number of medical examinations during—

(a) Primary school years (*i.e.* 6-11).
(b) Middle school years (*i.e.* 11-14).
(c) Secondary school years.

5.4. What in your opinion is the optimum time that may be required for proper routine examination of a child?

5.5. To what extent do you think the Primary Health Centre staff can carry out health services to school children in its school/schools in the area?

5.5. (1) What additional staff and facilities are necessary to conduct minimum services to school children?

5.6. In view of the difficulty of obtaining doctors, nurses, etc., to work in rural areas, what would you consider are the suitable inducements for personnel to work in school/schools in the area?

(*a*) Doctors.
(*b*) Nurses.

5.7. Which of the following do you think the teacher can perform (with some training and supervision)?

(a) Observe children for signs of defects or illness.
(b) Refer these children to medical services.

(c) Keep simple health records.
(d) Weigh children.
(e) Measure height of children.
(f) Give vision test.
(g) Encourage parents to take child for examination and treatment.
(h) Be present and assist in the medical examination of children.
(i) Treat minor ailments and emergency conditions.

5.8. Is it desirable that parents should be present during the medical examination of their children to facilitate prompt follow-up measures?

5.9. What health records are kept in connection with school health services. Please send a set of forms, records, etc. now in use. Whose responsibility is it to maintain these records now? Have you any suggestions to make these records more useful?

5.10. Is there any state regulation or departmental rules prescribing minimum requirements regarding medical examination, vaccination and immunization and for follow-up procedures? If so, please furnish copies of these regulations.

5.10. (1) Are these regulations adequate? If not what are your suggestions?

5.11. Is it necessary to appraise the health of teachers and other school personnel?

(a) Pre-employment.
(b) Periodically—how often.
(c) Provide follow-up services.

5.12. What is the plan for financing school health services in your school/schools in the area?

(State, District, School).

5.12. (1) What is the amount of the medical fee collected from each student? Are the parents agreeable to the collection? (2) How is it used?

6. Follow-up

6.1. Is there any plan for follow-up work? If so, please describe it. If not, what is most needed?

6.2. Who should be responsible for the follow-up?

6.3. What facilities (expert surgical, medical and dental aid) now exist in your area for treatment of special cases?

6.4. Of the health services now available in your area which of the following are reserved for children of school going age?

(a) Clinic facilities.
(b) Hospital beds.
(c) Primary health centre beds.

6.5. Are there any facilities for the treatment of handicapped (physically and mentally) children? If so, specify.

7. Communicable Disease Control

7.1. Which of the following diseases are most common among school children in your area and what control measures are most needed?

	Common in your area		What is needed to control it in your area
	Yes	No.	
(a) Smallpox			
(b) Cholera			
(c) T.B.			
(d) Diphtheria			
(e) Whooping cough			
(f) Typhoid			
(g) Tetanus			
(h) Hookworm			
(i) Dysentery			
(j) Others			

7.2. Considering the present conditions and resources, what immunizations would you recommend for school children and at what age?

7.3. Is the triple vaccine (whooping cough, diphtheria, tetanus) given to children in your area?

7.4. What should be the responsibility of the Primary Health Centre for control of communicable diseases in schools?

7.5. What part does the teacher take in control of diseases of school children?

7.6. Are there any arrangements for preventing children suffering from communicable diseases from attending the schools?

7.7. Do you have any regulations or laws regarding immunization and disease control? If so, please list or send copies.

8. Emergency Care

8.1. What are the types and frequency of accidents occurring in the school/schools in your area?

8.2. Are any emergency treatment facilities now provided in your school/schools in your area? What are they?

8.3. What additional facilities need be provided for this purpose?

9. Administration

9.1. What organisation is at present in charge of school health programme at State, District and local levels? Is it effective and adequate? If not, keeping in view our limited resources, what do you suggest should be a minimum administrative set-up for each level?

9.2. What training or orientation would you suggest for doctors, nurses and others who are to work in school health services?

9.3. Is there a school health committee at—

(a) State level?

(b) District level?

(c) Any other administrative level? (Specify).

9.4. Which of the following are represented on this Committee?

(a) Health Department.

(b) Education Department.

(c) Food & Agriculture.

(d) Community Development.

(e) Others. (Specify).

9.5. How should co-ordination take place for planning, financing, executing the school health programme?

What part should each of the following play?

(a) Health Department.

(b) Education Department.

(c) Community Development.

(d) Food & Agriculture.

(e) Local bodies.

(f) Voluntary agencies.

(g) Semi-official bodies.

(h) Individual parents.

9.6. Do you feel that Co-ordination at the block level is now being carried out successfully?

If not, what are your suggestions for its improvement?

9.7. Do the school/schools in your area have parent-teacher association?

9.8. What steps have been taken in your State for constituting the State Health Education Council under the Central Scheme of establishing State Health Education Bureaux?

9.9. Has the State School Health Committee started functioning?

9.10. What proportion of the expenditure of a school health programme should be borne by the—

(a) State?

(b) Local Community?

(c) Parents (According to their income)?

9.11. Should there be any financial assistance from the—

(a) Central Government to State Governments/Municipal Corporations,

(b) State Governments,

(c) Municipal Corporation,

etc., for carrying on school health programme ? What pattern of assistance do you suggest ?

9.12. What legal provisions are there now in your area for school health administration ?

Please furnish a copy, if available.

APPENDIX A-II

Analysis of the Data Collected on the School Health Committee Questionnaire

The questionnaire was sent to individuals and institutions concerned with school health activities, such as heads of schools and other institutions, district inspectors of schools, primary health centres and State health authorities. A total of 382 replies were received from such sources of different States. The States are divided into five regions, *viz.*, North (Delhi, Himachal Pradesh, Punjab and Uttar Pradesh); East (Bihar, Orissa, West Bengal and Assam); Central (Madhya Pradesh and Rajasthan); West (Gujarat and Maharashtra); and South (Andhra, Mysore, Madras and Kerala). Table 1 shows the distribution of the individuals according to the source and region

TABLE 1

Source	North	East	Central	West	South	Not known	Total	Percentage
1. District Inspectors of Schools	25	19	28	11	15	3	101	26.4
2. Heads of schools	17	12	15	7	17	4	72	18.8
3. State or Central Government	16	8	3	3	7	..	37	9.7
4. Primary Health Centres	14	6	5	2	8	..	35	9.2
5. Principals of Colleges and other Institutions	23	9	8	14	12	1	67	17.5
6. Others	27	8	3	10	11	11	70	18.4
TOTAL	122	62	62	47	70	19	382	100.0
Percentage	31.9	16.2	16.2	12.3	18.3	5.0	100.0	..

TABLE 2 : Q. 1.2(A).—*Environmental Hygiene*

93 per cent answered 'Yes' for all the seven items taken together. If any tem is considered separately, at least 96 per cent have answered 'Yes' for

TABLE 3 : Q. 1.2(B).—*Health Services*

	Yes	No	Percentage 'Yes'	Not available
Treatment	355	18	95	9
Immunization	374	3	99	5
Medical Examination	376	3	99	3
Follow-up	350	11	97	21

Frequency of Medical Examination

	Number	Percentage
(a) At entrance to school	6	2
(b) At entrance and at one other year	40	13
(c) Every year	91	31
At entrance and every year	104	35
(d) Others	58	19
TOTAL	299	
Not available	77	

NOTE.—Others in this table include others specified in the schedules as well as all other combinations not mentioned above.

TABLE 4: Q. 1·2(C).—*School Feeding*

Programme	Number	Percentage
1st.	62	17
2nd	93	25
3rd	96	26
2nd, 3rd.	62	17
4th	51	15
TOTAL	364	
Not available	18	

TABLE 5 : Q. 1.2(D).—*Health Instruction*

Part of syllabus all schools	Taught by every teacher	Put to practice	If not in all, schools (46) which preferred		Number	Percentage
Yes . . .	328	258	368	Primary	22	47.8
No . . .	46	112	4	Middle	31	67.4
Percentage 'Yes' .	88	69	99	Secondary	23	50.0
Not available .	8	12	10	Teacher Trg.	24	52.2

TABLE 6 : Q. 2.1.—*School Environment*

	Yes	No	Total	Not available
Frequency	137	100	237	152
Percentage	58	42		

Many of the respondents did not either give any details or gave suggestions about the necessity of clean surroundings for schools. However, it may be stated that a few respondents suggested certain standards. A space of 8 to 10 sq. ft. per student was recommended by most of them. Classroom sizes varying 21′ × 12′ to 36′ × 18′ were also suggested.

TABLE 7 : Q. 2.2.—*Standards set for School Building*

	Yes	No	Total	Not available
Frequency	78	195	273	116
Percentage	28	72		

The majority of the respondents were not satisfied with the standards The most common standards suggested are purified water, tap system and flush system. For the other items, the range of replies is far wide to admit of any analysis.

Q. 2.3.—*Maintenance of Sanitation in Schools*

The replies in regard to the arrangements required for sanitation, have a wide range and cannot be summarised faithfully. They suggested many things from the appointment of a sweeper to the appointment of school health committee and special grants.

The responsible agencies suggested were mostly either headmaster or the school authorities with the co-operation of the students. Some suggested Primary Health Centre, Gram Sevaks, Health Department, Sanitary Inspectors, Education Department, trained teacher, Village Panchayats and Town Municipalities, School Committee, Local Board, Health Inspector, Sanitation Committee, students' leaders or joint responsibility of teacher and pupils.

TABLE 8 : Q. 2·4.—*Maintenance of Cleanliness of School and its Premises*

	Yes	No	Partly	Tot	able
Frequency	193	125	24	342	47
Percentage	56	36	8		

The majority of the respondents replied that children are already associated. The parties who said 'No' are not, however, negligible.

Regarding the necessity of the programme about fifty per cent of the respondents agreed that the arrangement of childrens' association is necessary.

Q. 3.1.—*Health Teaching*

A large majority of the respondents gave the practical application as that of maintaining or checking personal cleanliness of students. Physical exercise, health parades, assessment of marks for personal cleanliness, cleaning of class rooms, general maintenance of sanitation and hygiene in schools, daily examination of scholars, drill, and games, sanitation, first-aid, display of health charts, citizenship activities, physical training, maintenance of canteens, and drinking water supply, making the students responsible for school cleanliness, etc., constitute the wide range of replies.

TABLE 9 : Q. 3.2.—*Activities to Stimulate Students to do Practical Work*

	Number	Percentage
No activities	38	12
Some activities	266	88
TOTAL	304	
Not available	78	

Nature of activities in per cent in 266 cases.

	Number	Percentage
Competitions	200	75·2
Projects	121	45·5
Field trips	126	47·4
Demonstrations	168	63·2
Teaching examples	164	61.6
Any other activities	96	36.1

TABLE 10 : Q. 3.3.—*Health Education part of Teacher's Training*

	Primary	Middle	Secondary
Yes	259	256	249
No	30	30	40
Percentage 'Yes'	90	90	86
Not available	93	96	93

TABLE 11 : Q. 3.4.—*Students Health Committee in School or Area*

	Number	Percentage
Yes	86	30
No	209	70
Total	295	
Not available	87	

TABLE 12 : Q. 3.5.—*Health as one of the Core Subjects*

	Number	Percentage
Yes	192	60
No	135	40
Total	327	
Not available	55	

TABLE 13 : Q. 3.6.—*Health as an Examination Subject for Teacher Training*

	Number	Percentage
Yes	323	90
No	33	10
Total	356	
Not available	26	

TABLE 14 : Q. 3.8.—*Sex Education to be given in Schools*

	Number	Percentage
Yes	261	75
No	91	25
Total	352	
Not available	30	

If 'YES'

Age	Number	Percentage
Below 10 years	15	7
11—14 years	145	62
15 years and above	73	31
Total	233	
Not stated	28	

TABLE 15 : Q. 4·1.—*Nutritional Deficiencies*

Deficiencies	Pre-School		School	
	Number	Percentage	Number	Percentage
Protein	58	25·55	68	26.05
Vitamin	148	65.20	173	66.28
Calcium	20	8.81	26	9·96
Iron and Mineral	20	8.81	23	8.82
Fat	8	3·52	11	4·21

NOTE:—The item was not answered in 155 cases for the Pre-School stage and in 121 cases for the school stage.

TABLE 16 : Q. 5.1.—*Major Defects Among School Children*

Defects	Number	Percentage
Defective Vision	116	67·44
Tonsil	45	26.16
Adenoids	4	2·33

Defects	Number	Percentage
Ear defects	10	5.81
Skin disease	32	18.60
Stomach defects	17	9.88
Physical disability or deformity . .	6	3.49
Poor health and general debility . .	23	13.37
Lungs & Bronchitis	5	2.91
Postural defects	5	2.91
Goitre.	3	1.74
Others	7	4.07

NOTE I :—The item was not answered in 172 cases.

II :—Some of the nutritional deficiencies like malnutrition, vitamin, calcium etc., were mentioned in this section but not in the section 4·1. For tabulation, we have regarded the deficiencies as nutritional deficencies and not as 'major defects'.

TABLE 17 : Q. 5.2.—*Health Appraisal Procedures*

Item	Yes	No	Percentage 'Yes'
(a)	264	55	83
(b)	312	22	93
(c)	333	5	99
(d)	311	22	93
(e)	318	16	95
(f)	284	41	87
(g)	210	97	68
(h)	50	108	32

TABLE 18 : Q. 5.3.—*Number of Medical Examinations*

Number of examination per year	Primary		Middle		Secondary	
	Number	Per cent	Number	Per cent	Number	Per cent
Less than one . .	112	34	105	30	58	18
One	91	27	114	35	179	54
Two	93	28	89	27	73	22
Four or more . .	36	11	22	8	20	6
Total . . .	332		330		330	
Not Available .	50		52		52	

TABLE 19 : Q. 5·4.—*Optimum Time for Medical Examination*

Time	Number	Percentage
Up to 10 minutes	92	41
11—20 minutes	70	31
21—30 minutes	44	20
30 & over	15	8
Total	221	

Q. 5·5.—*To what extent Primary Health Centre staff can carry out health service in schools in the area?*

The concrete suggestions given vary widely and are as follows :—

1. Medical examination of students.
2. Follow-up work.
3. Preventive and curative services.
4. Regular health check-up.
5. Treatment and advice.
6. Correction of minor defects and references to District Hospitals.
7. Paying visits and suggesting treatment.
8. Assistance in sanitation.
9. Distribution of medicines for common diseases.
10. Supply of milk to children.
11. Liaison between teacher and Medical Officer.

Q. 5·5(1).—*Additional staff and facilities necessary to conduct minimum services to school children.*

Typical replies are recorded to give an idea of the range :—

1. Extra allowances.
2. Medical Inspectors with two assistants.
3. A separate school medical staff of a doctor and a nurse.
4. Special Health Officer.
5. A doctor with clinic.
6. Government doctors to render help.
7. Health Officer and Inspector.
8. Separate Medical Officer for school medical examination and a mobile dispensary.
9. One doctor with a peon along with conveyance and medicines.
10. One Medical Officer for each centre, a Dentist, an Eye Specialist
11. A teacher.
12. School Health Officer and a nurse.

13. A doctor, dispenser, two nurses and a peon.
14. Separate official trained in Health Education.
15. One assistant, one Medical Officer, and one Sanitary Inspector.
16. A Public Health Nurse Should be attached to 300 students.
17. Specialist may be appointed, etc., etc.

Q. 5.6.—*Suitable inducements for personnel to work in schools in rural areas.*

Although no concrete suggestions were given, a large majority of the parties suggested extra allowances or extra or attractive pay. The other suggestions were:—

1. Well-furnished quarters.
2. Educational facilities.
3. Accommodation.
4. Per capita free.
5. Fixed additional pay of Rs. 100 per doctor and of Rs. 50 per nurse.

Q. 5.7.—*Performance of duties by the teacher (with some training and supervision).*

The informants predominantly hold the opinion that the teacher can perform all the duties mentioned in the question (a) to (h) except (i) for which forty of them gave negative reply and the others said "yes".

TABLE 20 : Q. 5.8.—*Should parents be present during the medical examination of their children ?*

	Yes	No	Total	Not Available
Frequency	339	46	385	4
Percentage	88	12		

The above table indicates the clear verdict given by the respondents. They hold the opinion that the parents should be present at the time of examination.

TABLE 21 : Q. 5.9.—*Health Records in connection with School Health Services*

	Yes	No	Total	Not Available
Frequency	212	92	304	85
Percentage	70	30		

About 70 per cent of the respondents mentioned maintenance of health records. The responsibility for the maintenance was, however, not mentioned in many a case. In a few cases, the following agencies are said to be responsible:—

(i) Medical Officer in-charge.

(ii) Headmaster.

(iii) Department of Physical Education.

Specimens of original cards were attached.

TABLE 22 : Q. 5.10.—*State Regulations or Rules prescribing minimum requirements regarding medical examination, vaccination, immunization and follow-up procedures.*

	Yes	No	Total	Not Available
Frequency	181	110	291	98
Percentage	60	40		

From the information available the majority of the informants mentioned no regulations for minimum standards or did not reply. Only among the parties who said 'yes', the majority mentioned vaccine and immunization. Copies of these regulations were enclosed.

TABLE 23 : Q. 5.10(1).—*Are these regulations adequate ?*

	Yes	No	Total	Not available
Frequency	70	108	178	211
Percentage	40	60		

Only a few parties expressed adequacy of the regulations but on suggestions were offered by others.

Q. 5.11.—*Appraisal of health of teachers and other School personnel.*

(a) The overwhelming majority was in favour of pre-employment appraisal of health of school teachers.

(b) In respect of periodical examination "once an year" found favour with the majority of the respondents. Next in order of importance are examinations every five years and every three years. Suggestions were also made regarding the desirability of having examination twice a year.

(c) Follow-up services were advocated by the majority.

It may be noted that the parties who said "yes" for all the three : (a) (b) and (c) together constituted the largest bulk of the informants.

TABLE 24 : Q. 5.12.—*Financing school health services in schools in the area.*

	Yes	No	Total	Not Available
Frequency	314	25	339	50
Percentage	93	7		

From the information available the financial assistance is mostly drawn from the State Governments or by collection of special fees from students. The other agencies mentioned are as follows:—

1. Corporations.
2. Panchayats.
3. School authorities.
4. Local Bodies.

TABLE 25 : Q. 5.12. (1)—*Collection of medical fee from each student.*

	Yes	No	Total	Not available
Frequency	130	194	324	65
Percentage	40	60		

Most of the informants said 'nil'. The information given suggests varied practices in the amounts collected. They ranged from 6 nP. to 75 nP. per student per month. No information was given about the attitude of parents.

Q. 5.12(2)—*How is the amount used?*

The amounts collected are utilised for the following purposes:—

(1) Medical Examination and treatment.
(2) Doctor's charges of fees and equipments.
(3) Salaries to Medical Officer.
(4) School dispensary.

In the majority of cases, it was paid to doctors either as fees or allowances.

Q. 6.1—*Follow-up work.*

The non-respondents and the parties who said 'no' were equal, each constituting almost 150 in number. The information from the other parties suggest that the follow-up mainly consisted of intimation to parents. The following instances were also mentioned :

(1) Health staff was appointed to persuade the parents to do the needful.
(2) Treatment was provided at the school dispensary.
(3) A regular follow-up every three months was done.
(4) A sick register was maintained for periodic inspection.

Q. 6.2—*Who should be responsible?*

About 50 per cent of the parties did not reply to the question. The rest of the parties gave the following suggestions :—

(1) Parents or guardians.
(2) Medical Officer-in-charge.
(3) The School Health Nurse.
(4) Trained teachers.
(5) Health services.
(6) The school management.
(7) Director of Health Services.
(8) Examining doctor.

TABLE 26 : Q. 6.3.—*What facilities (expert surgical medical and dental aid) now exist for treatment of special cases ?*

	Yes	No	Total	Not Available
Frequency	114	135	249	140
Percentage	49	51		

The respondents do not seem to understand the question clearly. Only 114 of them replied in the affirmative. Most of the parties mentioned the availability of facilities at the district hospital, State hospital or other hospitals of the Muncipalities or Corporations.

TABLE 27 : Q. 6.4.—*Reservation of health services for treatment for children of school-going age.*

	Yes	No	Total	No. Available
Frequency	71	186	257	132
Percentage	28	72		

The overwhelming number of parties replied in the negative. Amongst those who attested to reservation, the majority mentioned reservation for clinic facilities. No reservation for hospital or primary health centre beds was made except in isolated instances.

TABLE 28 : Q. 6.5.—*Any facilities for treatment of handicapped children (physically and mentally) ?*

	Yes	No	Total	Not Available
Frequency	18	235	253	136
Percentage	7	93		

Only 18 of the respondents replied in the affirmative. Most of other parties mentioned 'no'.

TABLE 29 : Q. 7.1.—*Communicable Diseases*

	Number	Percentage
Dysentery	229	73
Small-pox	194	62
Whooping cough	181	58
Typhoid	179	57
Hookworm	123	39
Cholera	95	30
Tuberculosis	72	23
Diphtheria	53	17
Tetanus	32	10
Others	117	37

NOTE :—In 67 cases item was not answered.

TABLE 30 : Q. 7.2.—*Immunizations*

The following is distribution of immunization suggested for different diseases :

Diseases	Frequency
Smallpox	173
Cholera	65
TB (BCG)	48
T.A.B.	45
Typhoid	30
Diphtheria	19
Whooping Cough	18
Tetanus	12
Others	1

It can be seen from the above that opinion was only in favour of Smallpox vaccination although immunization against other diseases like Cholera, Tuberculosis Typhoid, etc., was also suggested.

TABLE 31 :Q. 7.3.—*Is triple vaccine given to children ?*

	Yes	No	Total	Not Available
Frequency	24	269	293	96
Percentage	10	90		

TABLE 32 :Q. 7.4.—*Responsibility of Primary Health Centre for control of communicable diseases in schools.*

	Immunization	Preventive services	Full responsibility	Medical examination and propaganda
Frequency	49	62	77	16
Percentage	22	28	35	7

TABLE 33

	Advice to parents and students	Periodical and weekly visits	Total	Not Available
Frequency	7	12	223	166
Percentage	3	5		

A large number of them wanted Primary Health Centre to take complete responsibility of school health work in their areas.

TABLE 34 : Q. 7.5.—*Part played by teacher in controlling diseases of school children.*

	Isolation & notification	General superivsion	Teaching students & preventive measures	Advice to parents & students	No help being rendered	Total	Not Available
Frequency .	56	17	42	40	82	237	152
Percentage .	24	7	18	17	34		

TABLE 35 : Q. 7.6.—*Any arrangement for preventing children suffering from communicable diseases from attending schools ?*

	Yes	No	Total	Not Available
Frequency	172	92	264	125
Percentage	65	35		

In the majority of cases children who were suffering from communicable diseases were prevented from attending the schools.

TABLE 36 : Q. 7.7.—*Any regulations or laws regarding immunization and disease control ?*

The replies are distributed as below :—

	Yes		No	Total	Not Available
	Compulsory	Voluntary			
Frequency	63		122	185	204
Percentage	34		66		

TABLE 37 :Q . 8.1.—*Emergency Care—frequency and types of accidents occurring in schools.*

	Yes	No	Total
Frequency	227	23	250
Percentage	90	10	

In the majority of the replies, minor injuries such as cuts, bruises, bleeding in the playground, fractures, etc., were mentioned.

TABLE 38 : Q. 8.2.—*Any emergency treatment facilities now provided in schools?*

	Yes	No	Total
Frequency	168	122	290
Percentage	58	42	

From the information available it appears that first-aid constituted the only emergency treatment facilities now provided.

TABLE 39 : Q . 8.3.—*What additional facilities need be provided ?*

	Yes	None	Total	Not Available
Frequency	201	29	230	159
Percentage	90	10		

A large number of respondents who suggested any facilities requested for first-aid boxes with free necessary equipments. The other suggestions made are as follows :—

(i) Provision of dispensary/hospital.

(ii) An Ambulance car with first-aid box.

(iii) Training of teachers/students in first-aid.

(iv) A medical officer.

(v) The school should be attached to the hospital for emergency treatments.

Q. 9.1.—*Administrative set-up.*

In almost all the reports, the Director of Medical and Health Services-District Medical Officer, Local Health Officers or Panchayat were indicated as the organisation in-charge of School Health Programme at the respective levels. In all cases it is considered to be ineffective and inadequate. Apparently the intention of the question has not been grasped. For instance, at the State level, one would like to know the administrative set-up of the officer specifically dealing with the topic.

Q. 9.2—*Suggestions for training or orientation for personnel who are to work in school health services.*

Most of the informants suggested child psychology. The other suggestion are :—

(i) Diploma in Public Health at the All-India Institute of Hygiene & Public Health, Calcutta ;

(ii) Orientation training at Najafgarh, Delhi ;

(iii) Training in adaptability in rural living ; and
(iv) Rural sanitation and training in medicine and surgery.

Q. 9.3. & 9.4.—*Representation of Govt. Deptts., and other organisations in School Health Committee.*

Most of the parties indicated the non-existence of school health committees. The representation of the Committee, does not, therefore, arise.

Q. 9.6.—*Co-ordination at the Block level.*

It was mentioned that co-ordination was not being carried out successfully The suggestions are as follows:—

(i) Blocks may be provided with extra-grant to maintain school sanitation ;
(ii) The blocks should be provided with more help and facilities;
(iii) Block development should be a special item on the agenda for discussion. School teachers should be invited to express their opinions in the matter ;
(iv) All the concerned agencies, *viz.*, health education, local bodies should meet together and discuss the problem;
(v) Stress should be on practical rather than on theoretical aspect of the problem ;
(vi) There should be proper training of school teachers and parents; The extension teachers should be well trained; and
(vii) Nurses should be employed.

TABLE 40: Q. 9.7.—*Do the schools have parent-teacher associations?*

	Yes	No	Total	Not Available
Frequency	134	132	266	123
Percentage	50	50		

A 'yes' reply might not evidently refer to all schools within jurisdiction of the respondents. The respondents are equally divided. The parent-teacher associations, it seems, are as frequent as they are not.

TABLE 41: Q. 9.8.—*Steps taken in the State for constituting State Health Education Council under the Central Scheme.*

Practically all the respondents did not reply. The distribution of the replies is as below :—

	Not Available	No	Not applicable	Total
Frequency	302	80	7	389
Percentage	78	20	2	

TABLE 42 : Q. 9.9.—*Has State School Health Committee started functioning?*

	Yes	No	Total	Not Available
Frequency	11	113	124	265
Percentage	9	91		

Practically no State School Health Committee is functioning, as it is evident from the information given.

TABLE 43 : Q. 9.10—*What proportion of expenditure of a school health programme should be borne?*

States		Local Bodies	Parents
Class interval of percentage of expenditure	Frequency		
0	4	52	68
1—10	..	8	30
11—20	..	22	14
21—30	7	67	53
31—40	2	15	2
41—50	65	12	..
51—60	8	..	..
61—70	6	..	..
71—80	40	..	..
81—90	6	..	..
91—100	43	..	..
	181	176	167
No replies	208	213	222
Grand Total	389	389	389

TABLE 44. Q 9.11.—*Financial assistance for carrying on school health programme.*

(a)	Yes	No	Total	Not Available
Frequency	177	13	190	199
Percentage	93	7		

Most of the respondents who answered 'yes' were in favour of the financial assistance from the Central Government to State Governments/Municipal Corporations.

(b)	Yes	No	Total	Not Available
Frequency	163	11	174	215
Percentage	94	6		

Most of the respondents who gave any information are in favour of the financial assistance from the State Governments also.

(c)	Yes	No	Total	Not Available
Frequency	141	16	157	232
Percentage	90	10		

Most of the parties who replied in the affirmative were in favour of financial assistance from the Municipal Corporations also.

As regards pattern of assistance, various opinions were expressed.

TABLE 45 : Q.9.12.—*What legal provisions are there now for school health administration ?*

	Yes	No	Total	Not Available
Frequency	8	132	140	249
Percentage	6	94		

None of the respondents who said 'yes' could enclose any copy of rules regarding this question.

NOTE :—It may be mentioned that quite irrelevant replies were also classified as "Not Available".

APPENDIX A-III

Report of Inaugural Meeting

The School Health Committee, set up by the Union Ministry of Health, was inaugurated by Shri D. P. Karmarkar, Union Minister for Health, on 8th April, 1960 at Vigyan Bhavan, New Delhi.

Lt. Col. V. Srinivasan, Director General of Health Services, welcoming the Members of the Committee, said that "health was the primary objective of education. Special consideration should be given to the health of the children of school-going age who are a segment of lifetime of the whole population."

"During this period of their life, children were exposed to various situations and are undergoing changes which call for watchful care," he said. "The tender age of the children, the impressionable state of mind they are in should be taken advantage of to inculcate the healthy habits in them."

Lt. Col. Srinivasan reviewd the work done so far in this field. He said that the school played an important role in the social structure of the community and added "there is an inter-relation between the school and the homes of the children that it serves, which is not only conducive to health teaching, but also greatly facilitates an organised approach to health promotion, health appraisal, and health restoration."

Inaugurating the Committee, Shri D. P. Karmarkar said that the health and happiness of the children constituted a solid foundation for the future of the nation. "We must devote utmost attention to the promotion of health of the children, in the pre-school and school-going ages. It was with the object of assessing what had been done in the past and suggesting measures that should be taken in future to improve the health and nutrition of school children that this Committee had been set up," he added. Shri Karmarkar said that school health service did not exist in most parts of the country and even where it existed, it was not organised on comprehensive lines. He pointed out that the Bhore Committee had, among other things, suggested that in each primary unit the male medical officer should be in-charge of school health service and the scheme should be started first in primary school; from each school at least two teachers should receive training in health education; steps should be taken to improve the nutrition of school children by initiating school lunch schemes wherever possible. He added that some of the recommendations of the Bhore Committee were being implemented by a few State Health Departments. He hoped the Committee would surely look into this aspect of the work. He commended the work done in the field of health of school children by various International agencies like WHO UNICEF, etc. Shri Karmarkar said that the presence of Dr. K. L. Shrimali Union Minister for Education, at this meeting brought to the fore the point that a joint effort between the education and health authorities was necessary for the success of school health work. He hoped that the Committee, comprising of members eminent in their respective fields, would give thought to the problem and give a workable solution.

Dr. C. Mani, Regional Director of WHO, said that with the successful introduction of immunisation methods it was no longer necessary to have a school health service which concentrated more on routine medical examination. "Millions of medical examinations have been carried out, tons of data have been collected and yet, if I may venture to say, it has not been a very fruitful effort." While the development of a separate school health service should not be encouraged, school health activities are essential as long as health service in the community were insufficient, he said. Such activities should concentrate on health education, promotion of health, environmental sanitation, and prevention of diseases. He stressed the importance of the teachers and said, "with some training school teachers can discover the major illnesses which should be referred to the hospitals." He urged the need for care and attention of the pre-school children. He said, "Nutrition programme is a fundamental programme and would be a much greater investment than a school health programme." He pleaded for nutrition education of teachers and parents. This could be achieved to a certain extent by having kitchen gardens, fish ponds, etc., in schools.

Mr. T. G. Davies, Chief, Area Office of UNICEF, said that school health services to be worthy should be infused with warm heartedness, love for children, and should not degenerate into routine check-up. He pleaded for the introduction of school lunch programmes and said that the Committee should look into the details of such a scheme.

Shrimati Renuka Ray, M.P., said that in India the children of school-going age represented nearly a third of the country's total population. A school health system which ignored the health of the child could not bring about the all-round development of the child or create a healthy race. She said that it should be remembered that Gandhiji had laid a great stress on environmental hygiene as an integral part of his scheme on Basic Education. "As our primary education expanded, had we included this in our educational system by now we would have made rapid strides in this direction." "A school health organisation has also to provide for periodical physical examinations, correction of defects, prevention work including vaccination and inoculation. And what is of great significance is a follow-up programme in the homes of the children. Perhaps of the greatest importance in our country today is the need to stress the nutritional aspect of school health." School health as a programme had only just gained acceptance and only a few organisations both official and non-official had started some survey and research of the present health conditions of school children. She pleaded for co-ordination of various agencies for success of school health work.

Dr. K. L. Shrimali, Union Minister for Education, in his address said that the health of school children, had been neglected. In aiming at the well-being of the child the whole personality of the child had to be developed. The foremost problem today is one of malnutrition of the school child. The free meal service for school children in vogue in a few States of India could be extended to other States. Local initiative and local effort, besides the co-operation of the entire community, was essential for the success of this scheme. There was also the need for the proper nutrition education of the community and the creation of awareness of the problem. Public opinion had to be educated. Medical Service in schools should always have a follow-up. He said :

> "Now these are the two major problems which we have to solve and I hope the Committee will make recommendations to that effect. We do not have adequate resources and where the parents cannot come forward, we have to create that atmosphere and the commun is to be made to realise that it is their responsibility also to provide proper food and all the nourishment to the children. There have been in the past various programmes and many State Governments have provided some kind of health service in the cities and in the rural areas there is similar medical examinations and health services. Here again, the greatest difficulty is as to what happens after the medical examination. A doctor goes to the school, examines the children and says that they suffer from certain disease but what happens after that. Do the parents have adequate resources to find all the medicines required or are they in a position to give them a satisfactory diet so that all these deficiencies may be removed. Mostly there is no follow-up. I think any kind of medical service which does not have a follow-up programme will fail. You may give them the best advice but we should have follow-ups. Therefore, I think when we make some kind of recommendations we

> have to ensure that there is a proper follow-up and in this matter also the State and the local bodies or the community will have to cooperate and the schools will have to set up teachers-parents associations so that there can be regular exchange of views between parents and teachers. The parents should know the results of the medical examination and teachers should also know what the parents could do and what they could not do and what changes can help them in that matter."

The pre-school child is the most important age, he said and pleaded for measures for the welfare of pre-school children.

The first meeting of the School Health Committee was held in the afternoon on April 8, 1960, with Shrimati Renuka Ray in the chair. In her opening remarks, she said that it would contribute much to the understanding of the various problems if each member presented a brief outline of his or her thinking on the present position of school health in the country.

Dr. Kabbur spoke about the conditions of schools in Dharwar in particular of those in the country as a whole, in general, housing of schools, he said, was bad. The insanitary conditions and the lack of open spaces in schools was the bane of our educational life. Malnutrition presented a major problem among school children. The mid-day meal was deficient in food values, either because of one's ignorance of the principles of nutrition or because of the poverty of the parents. Medical inspection of children, in his opinion, was absolutely necessary. He had conducted inspections himself and was aware of the fact that several cases of pulmonary tuberculosis among children had gone unnoticed either by the teacher or the parents. There were many cases of flat foot, tonsils, adenoids and other defects, which made him think that very few children could pass as normal. Hospitals are not properly staffed as to admit large number of cases. It was idle to expect too much from parents. There was an urgent need for awakening the people. Cooperation should come from the Centre, State and the local bodies in the organisation of school health services.

Mrs. Tara Cherian said that even before we had thought of the Committee, several State Governments had done something in the field, but that was not enough. "Education on an empty stomach," she said, "was an impossibility." The school lunch programme in Madras has had a very good response from village level people. The programme should be conducted on a national scale. It had been found that the middle and lower income groups did not want charity in the matter of school lunch. A system of preparing school lunches on no-profit no-loss basis was necessary. She felt that it was essential to involve the community in the organisation of school lunch programme. She said that there should always be liaison between the hospitals and primary health centres in the matter of follow-up of cases of school children. She stressed the need for medical examinations in schools with suitable follow-up. Mrs. Cherian suggested a pilot study to find out the present position relating to school health services, mid-day meal programme, etc., prevailing in the country.

Shri C. S. Nayar (Ministry of Education) said that a joint committee on Health & Nutrition Education had drafted syllabi for children of certain age-groups and teacher training institutions. He said that health education was a branch of physical education. The Government had conducted a physical efficiency drive and awards were made for physical fitness. He said that the Ministry of Education had insisted that every school newly started should have playground and open spaces.

Dr. (Mrs.) R. P. Devadas said that schools themselves should prepare lunch in canteens for children. A nutritional programme was the prime necessity. She endorsed the suggestion made by Mrs. Cherian for organising lunch programmes on national basis. She urged that people should be involved in the organisation of mid-day meal programmes and gave a few instances where such involvement of the public helped the success of lunch programmes. She said that medical examination was very necessary and follow-up in case of sick children should be undertaken at all times.

Dr. C. Gopalan mentioned a few projects of the Indian Council of Medical Research in the field of child health and nutrition. An investigation of growth and physical development of children was undertaken. 60,000 children were examined. A country-wide survey of protein deficiency in children had to be made. There was the problem of Vitamin A deficiency, which resulted in blindness, particularly in South India and West Bengal. A national school lunch programme was very essential. School Health Service should be related to the primary health centre. He suggested a pilot study to see how far the pre-school children could be reached and what should be done after having reached them. A hundred such centres should be selected and provided with the additional staff to look after the school health work, which was one of the functions of the primary health centre.

Mrs. Ika Paul-Pont spoke on the pilot project conducted by the Indian council of Child Welfare in New Delhi.

On the second day (9th April 1960), the procedural aspects of bringing out the report were discussed. Shrimati Renuka Ray was in the chair.

It was decided that each member of the Committee should be entrusted with the responsibility of collecting data on the existing facilities in the allotted areas in the country, by meeting people and organisations at different levels and sending the material to the Chairman. The Interim report was to be ready by July 1960.

Dr. (Mrs.) Devdas pointed out that the draft questionnaire to be given to persons and organisation should be so worded that the replies are not lengthy, but short and precise. The chairman said that questions that elicit "yes" or "No" replies were better. Different questions should be directed to different categories. Dr. C. Gopalan said that a few specific questions should be directed to specialists.

It was also decided that a general questionnaire (for teachers, doctors, etc.) should be prepared. A proforma containigng guidance for collecting information when meeting people was also necessary. It was also decided that before finalising the Interim Report, it was necessary for all the members of the Committee to go round to observe the existing conditions.

Dr. Gopalan said that members should assess the merits and demerits of voluntary efforts in regard to school health service. The service should be placed on a nation-wide basis and should be a phased programme. In the present context one found it increasingly difficult to induce doctors to go to villages. Extra emoluments to doctors working in villages were imperative.

In school health service, certain things could be taken up by the teacher. A nucleus of school health programme was necessary. In each State, the programme will cover medical inspection, health education and follow-up of defects in school children.

Mrs. Annie Ray Moore said that the teacher could do many things, if only he was given some assistance. The Chairman said that the teacher should be re-oriented, being in a key position. Dr. V. Ramakrishna agreed with this view and said that this was re-orientation in the teachers training programme under the UNICEF scheme.

Earlier, the Chairman said that all were agreed that the first priority for the Interim Report was the nutritional needs of school and pre-school children and that the second priority was environmental hygiene. It was decided that Shri C. S. Nayar, (Ministry of Education) would place before the Committee all the information and data relating to environmental hygiene.

The Chairman said that the Interim Report would be brought out after replies to the questionnaire had been collected and analysed. Dr. Gopalan said that the Committee represented different specialities and the quicker they got the data the better. Dr. V. Ramakrishna said that pressure should be brought on each Ministry in the matter of the ground-work.

The Chairman pointed out that the Interim Report would cover only the Committee's general approach to the subject and that the Final Report would cover the detailed implementation. The idea of the Interim Report, she said, was to help them in the allocation of funds in the Third Plan.

In the afternoon session of the meeting, the questionnaire was discussed, and several amendments were made. The amended question was to be sent to all the members who should return it within three days.

Two Sub-Committees were formed. One Sub-Committee was on nutrition and school lunch programme comprising Mrs. Tara Cherian, Dr. (Mrs.) R. P. Devadas and Dr. M. Swaminathan. The second Sub-Committee was on School Health Services and comprised of Dr. Kabbur, Dr. C. Gopalan, and Dr. V. Ramakrishna.

APPENDIX B-I

SCHOOL HEALTH SERVICE

The present school health facilities in our country

The existing position of school health services in the States is briefly reviewed below :

Andhra Pradesh

School health service has been in force in the twin cities of Hyderabad and Secunderabad for the last 25 years. This service has since developed and now comprises seven health officers of whom one is the Chief Medical Inspector of schools. Among these there are two women health officers to examine the girl pupils. There are 3 dispensaries located in the twin cities for rendering service to the large student population. Expansion of this programme to districts was taken up during Second Plan. So far, six school health clinics at the district headquarters of Nalgonda, Karimnagar, Warangal, Nizamabad, Medak and Mahboobnagar have been opended in Telengana region, and four school health clinics in the districts of Guntur, Kurnool, Anantapur and Visakhapatnam in Andhra region. The staffing pattern for each clinic is : two health officers, one health inspector, one health visitor, one compounder and ancillary staff. The school health clinics established at the district headquarters are to cater to the needs of the entire district. Officers and staff of each clinic have been provided transport facilities so as to undertake tour of the entire district. Following are some of the duties assigned to the officers in charge of the clinics :—

(i) Complete medical examination of all school children upto higher secondary classes and the treatment of the common minor ailments detected and their follow-up and referring them to the nearest hospital or a dispensary if the services of a specialist are required or major treatment is to be undertaken.

(ii) Immunisation programme among school children against cholera, small pox and typhoid.

(iii) Inspection of the environmental condition of the school premises and getting the defects rectified by the management of the schools.

(iv) School Health Education Services, *i.e.*, health teaching to the school staff and children by lectures, demonstrations and cinema shows.

(v) Running of clinics for follow-up of cases.

Bihar

The school health service in Bihar is rendered by one of the block doctors with the help of a mobile van. He is expected to do the school health examination for children of that block. At present, there are only 414 blocks and the chidren of these blocks are being examined by the medical Officer of that place. Girls' schools are examined by the Lady Medical Officer of the State. The school health service is available to only about 1620 schools in the community blocks served by the health centres.

Gujarat

In Saurashtra region, school children's medical check up is conducted by the medical officers-in-charge of primary health units or government dispensaries assisted by the sanitary inspector or a nurse. In urban areas, the medical examination is conducted by the private practitioners or members of Indian Medical Association. A remuneration of 25 nP. per child is paid to these doctors for the examination. The doctors in the Government service are paid 12 nP. per child for the medical check up work. For assisting the doctors, 5 sanitary inspectors are employed, one for each district. These inspectors collect the data, keep the records, help the doctors in carrying out the medical examination of the school children and undertake the health education programme for the school also. The children found suffering from any disease or showing any defects which need correction are advised treatment in the local dispensary or are referred to the district hospital in case specialised treatment is required. The school health scheme in Kutch could only be taken up during the third year of the second plan due to non-availability of the personnel. In the rest of the State, the school health service forms a part of the integrated health services and is undertaken as a routine work in a primary health centre. The medical check up of the children in the schools is done by the medical officer of the primary health centre, who is helped by the nurse-midwife or health visitor in conducting the examination. The children needing medical care or treatment are advised to attend the primary health centre or dispensary and those requiring specialised care are referred to district hospitals. At present, the examination of children in the headquarter villages is only being taken up and covers the primary schools only. The children during their year of entering the class and of the outgoing class are examined. The health visitor, the midwife and the sanitary inspector pay visits to the schools for health education programme, give talks to the children and whenever possible arrange films, magic lantern shows, etc. Approximately, 1,00,000 children have been covered by these primary health centres so far.

Besides the school health schemes run by the State, in the urban areas, large municipalities like Surat and Baroda have their own schemes. In Baroda and Surat municipality medical check up of school children is carried out by the help of municipal dispensary doctors and the members of the Indian Medical Association. The children needing treatment are treated at the Municipal dispensaries and those requiring special services are referred to specialists. In Ahmedabad Corporation medical officer-in-charge looks after the organisation of the scheme. The medical officers of the Corporation dispensaries are allotted schools in their wards and carry out medical check up; ordinary ailments are treated at the Municipal dispensary only. The children needing specialised services are taken to the V.S. Hospital for the needful after the permission from the parents is obtained. The parents, however, can get the child treated from any doctor or institution they prefer. Where parents insist taking over the responsibility of correction of defects and ailments on themselves, the school services absolve themselves of the responsibility of the same. In such cases, if not corrected, the defect can only be renoticed in the subsequent check up. During the year 1960-61 about 44,000 children were examined of whom over 7,200 were found having one defect or the other. About 5,650 children received treatment.

As per rule 45 of Section V of Chapter II of revised G.I.A., school children are generally examined medically at the time of their admission to secondary school and thereafter at or about 14th year of their age and finally in the top standard before they leave the school and their records are maintained in the prescribed form. In the case of children who are found defective in health at the routine medical inspections, re-inspection is under-taken after a reasonable period and where possible, medical treatment is given to such pupils. In addition to the routine medical inspections, height and weight measurements are to be taken at regular intervals of not less than six months and recorded in the form of graphs by the teacher and any pupil showing material variation from normal progress are to be brought to the notice of the medical officer and the case to be reported to the parent or guardian for necessary treatment. Generally such records are brought to the notice of the parent or guardian in the progress register which is maintained by the school and sent for the perusal of parent or guardian of the pupils.

Generally such inspections are to be done by the R.M.Ps. who are qualified ones and they are paid from the term fee at the rate prescribed by Government. According to a new circular issued by the Director of Education, Bombay, in January 1960, management of non-Government secondary schools have to spend upto 0·50 nP. per pupil for medical inspection.

Kerala

The scheme of school health services envisaged falls into three stages :

(i) Medical inspection of school children.

(ii) Follow-up and study of the defects found by Specialist teams (two teams).

(iii) Training scheme for teachers in two centres, preferably in secondary health centres.

The first stage of the scheme has been already implemented in the State whereby medical inspection of 300 children per month in primary schools is carried out through 200 inspection units.

Maharashtra

The Government has established five school health units in Marathwada region, one for each district of Aurangabad, Parbhani, Nanded, Osmanabad and Bhir. A school health unit consists of a medical officer, a public health nurse, compounder, sanitary inspector and a driver and is equipped with a vehicle and necessary stock of medicines and First Aid equipment. These units examine the health of school-going children of primary and secondary schools. At first, they undertake the examination of pupils attending the schools in district headquarters. Thereafter, gradually they conduct the medical examination of all the pupils in the district. The diseases and defects from which the students are suffering are detected and are brought to the notice of their parents. The parents of the pupils found defective are told the treatment and how to get over the defects. The diseases and defects detected amongst the pupils are set right at the civil hospitals, district headquarters and primary health centres in rural areas. The weight of the children is recorded. The children are examined for nutritional deficiency diseases, eye diseases, diseases of ear, nose, throat, skin, teeth and other diseases common in children.

In the course of the examination, immunisation of children against smallpox is also checked. Minor ailments are treated in the school itself, for which medicines have been supplied to each clinic. Emphasis is laid on the follow-up. The public health nurses are expected to visit the parent of children, found defective at their homes and point out the diseases and the defects that have been detected and induce the parents to get their children treated. For meeting with eye defects, lenses of various denominations and spectacle frames have been prioivided in adequate quantities. In order to enable the doctor and the other staff to move about in the towns and the villages, where school health work is taken up, auto-rickshaws, one for each school health clinic, have been provided.

In rural areas, as one medical officer, who is already over-burdened cannot examine all the children in the area covered by primary health unit, he has been asked to invariably carry out school inspections of the schools at the main centres and the sub-centres which he has to frequently visit as part of his supervisory duties. The case requiring treatment are advised by him to take advantage of the primary health centres. These cases which cannot be treated at the primary health centres are advised hospitalised treatment. As regards the role of the nursing staff they carry out the treatment prescribed by the medical officer in primary health centres and follow-up the cases in their homes for further guidance to parents. This is also possible only in a limited population of 5,000 allocated for each nurse and midwife.

In Greater Bombay, medical examination in 561 schools of all the Municipal school children studying in I and III standards only is conducted every year. The particulars of medical examination are noted by the Asstt. Medical Officer in the prescribed form which are recorded in the office of the health officer. Primary vaccination under the Bombay Vaccination Act is compulsory. Immunization is encouraged during epidemics and enforced if required. Qualified health visitors designated as school health nurses are appointed to do follow-up work. They visit and revisit the homes of the ailing children and instruct their parents as regards their care and diet. The ailing children are treated free at the K.E.M. Hospital, Bombay, where facilities for surgical and medical treatment and dental care are available. The physically handicapped children referred by the doctors are escorted to the school clinic by the school clinic organisers in a special conveyance provided for them. Calipers, boot, eye balls, artificial limbs, etc., are supplied. Mentally handicapped children are referred to Psychiatrists attached to K.E.M. Hospital. For emergency treatment, the school authorities are supplied with First Aid materials.

Mysore

The existing scheme of medical inspection of schools in the State, is being implemented since 1952 for the children of Bangalore City. Since the reorganisation of States, efforts are being made to extend this to the entire Mysore State. The scheme is working under the direct control of the Director of Public Instruction. Under him, the Chief Medical Inspector of schools with 3 Medical Inspectors in Bangalore and one Medical Inspector at Mysore are in charge of general supervision and guidance. Since 1959-60, compulsory medical inspection is introduced throughout the State and medical inspection fees are collected from all children above 5th standard. The scheme is introduced in all primary and secondary schools. The medical inspection in Bangalore city is carried out through a panel of 12 private medical practitioners from which the schools are free to choose any one.

In the ex-Mysore area, 190 centres were selected for medical inspection. Of these only 140 are working at present. The rest are not working for want of medical men coming forward. The Government and private doctors are employed on a part time basis on a remuneration of 90 per cent of medical inspection fees in private schools and Rs. 50/- per month for 10 months in Government schools paid to private medical practitioners for inspection of 250 children in a month and Rs. 10/- or Rs. 15/- for Government medical officers for inspecting 60 children in a month. Lady medical officers are paid on a *per capita* basis at Rs. 0·50 nP. per child. Medical inspection is conducted every year and endorsement of medical inspection fees paid is made on the transfer certificates. The medical cards are given to migrated pupils along with transfer certificate. In the integrated areas, medical examination is done in selected schools though not uniformally and the scheme is yet to reach the entire State. By way of follow-up work, the cases are recommended for treatment to appropriate specialists by informing school authorities and parents. But it is not known how much of it is taken up by the parents.

Punjab

The school health service in Punjab is organised by the Assistant Director of Health Services, Punjab (T.B.) at the Directorate level. Five District School Medical Officers have been provided for Patiala, Sangrur Bhatinda, Kapurthala and Mohindergarh districts to organise the School Health Service at district level with the help of medical officers working in the hospitals and dispensaries. Eight Urban School Health Clinics have been established at Ludhiana, Rohtak, Hissar, Karnal, Gurgaon, Amritsar, Kangra (Dharamsala) and Chandigarh. The following staff has been provided for each clinic Medical Officer—one, E.N.T. and Eye Specialist—one, Dentist—one, Public Health Nurse—one, Dispensers—three.

All School Health Clinics (Except at Chandigarh) are under the District Medical Officers of Health. Clinic at Chandigarh is under Chief Medical Officer. No fee at present is being charged from the students of primary classes. Form 6th class onwards students are required to pay 25 nP per month towards School Health Fund, which is generally spent by the school authorities for purchase of medicines and other equipment etc. Part-time Medical Officers are paid out of this fund. The entire expenditure on School Health Service in the above eight Clinics in the State is met out of the State revenue.

School Health Service is an integral part of activities of Primary Health Centres. Hence the Medical Officers in-charge of Primary Health Centres are responsible for carrying out the medical inspection of school children of the schools located in the area of the Primary Health Centres. They are not entitled to charge any remuneration from the schools. Follow-up is the main emphasis in the School Health Scheme. In key villages the medical inspection of school children is conducted by the Medical Officers-in-charge of dispensaries without getting any remuneration from the Middle Schools. However they are entitled to get remuneration from High Schools. At other places the school authorities appoint the Part-time School Medical Officers with the approval of the Director of Health Services, Punjab. The doctors concerned are paid suitable remuneration out of School Medical Fund. Facilities for specialized treatment are provided in the Urban School Health Clinics or in the District hospitals or Medical College hospitals.

West Bengal

There are 87 municipalities excepting Calcutta Corporation in the State. There is at present no organised system for providing medical relief and overall "Health Care" to the student community. Bally and Darjeeling Municipalities only have made some sort of effort to start a form of service. The medical officers of the health centres established at Singur, Balaram-bait, Bora and Gopalnagar are doing school health work in their areas with the assistance of health assistants and teachers. The Corporation of Calcutta have a small number or part-time doctors for their primary schools ; some of the other schools also have part-time doctors on small remuneration, whose output is no better. The University of Calcutta have recently opened four clinics for their students where a degree of organised effort to follow-up of cases for rectification of defects is expected. Besides that, there are some voluntary organisations for assisting students in health care. All efforts made at present give relief to only a small section of the student community. There is, however, no facility at present for preventive care nor is there any intensive drive for imparting "Health Education" to the student community at large.

Delhi

The school health organisation under the municipal health officer, covers 71 schools (nursery to higher secondary) and 22,000 students. Under the scheme both preventive and curative facilities are available. The staff consists of 2 medical officers, 4 school medical inspectors, 1 dental surgeon, 1 eye surgeon, 4 public health nurses, 1 dispenser, 1 laboratory technician, 1 dental hygienist, 1 eye assistant and ancillary staff. Each child is examined after admission and subsequently of every three years as a routine or earlier if the medical officer considers it necessary. The record of the child is maintained from year to year throughout the school career. The defective children are followed up either in the treatment centres in the schools or in the central treatment centre by the public health nurses and specialists. The children needing examination by an eye or dental specialist are referred to him. The children who need examination of other specialists are referred to Irwin Hospital. In rural areas, the medical officers of the primary health centres are expected to inspect the children.

Tripura

There are three school health officers in the territory borne on the establishment of the department of health services under the Territorial Council They visit the schools, examine the health of the students and render advice wherever necessary.

Pondicherry

Medical inspection of children studying in schools was started in 1960-61. During 1960-61, 2200 children were medically examined under this scheme.

APPENDIX B-II

School Health Services in certain foreign countries

The school health services available* in some other countries are briefly mentioned below.

U.K.

The school health services (medical, dental, psychological, nursing, social work) are provided by Local Education Authorities with Ministry of Education grants, both in clinics and at schools. Some local Education Authorities have special "home visitors" for children who have been in hospitals, etc. The services are organised by each Local Education Authority. They are not limited to children of certain ages. Local Education Authorities are required by the Education Act, 1944, to provide for the medical inspection of all pupils in attendance at schools maintained by them. Usually there are at least three general medical inspections, two during the first and last years of compulsory school attendance, and one other inspection during the last year in the primary school or the first year in the secondary school. At other times parents, teachers or the school nurse may ask that individual children be seen by the school doctor. Each Local Education Authority has its own staff (medical, dental, etc.) who cover the schools in the Authority's area. Free treatment is provided under the National Health Service. There is full collaboration between the personnel of the services, the teachers, and the home. Parents are invited to be present at the school or at the clinic when the children are being examined. The teacher notices defects in vision, hearing, etc., and asks for an examination, or the nurse and medical staff discover the defects during routine medical inspections. Each child has a "health record" card kept at the school.

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*Brief notes made out of the material collected by the Word Confederation of Organizations of the Teaching Profession.

The scope of service in 1957 as given in the Report of the Chief Medical Officer of Ministry of Education for the years 1956 and 1957 was as follows :—

> "More than 6½ million children attending 30,000 maintained and assisted schools were covered by the service. The full-time equivalent to about 1,000 doctors (other than consultants), 1000 dentists, 2580 nurses, 330 speech therapists, 150 physiotherapists and remedial gymnasts, and other professional staff including audiometricians, chiropodists and orthopaedists were employed. There were nearly 2,690 school clinic premises where a wide range of services was provided, including about 1,000 minor ailment clinics, 1,330 dental clinics, 1,090 speech therapy clinics, 450 ophthalmic clinics, 230 child guidance clinics, 230 orthopaedic clinics, 160 artificial light clinics, 170 remedial exercises clinics, 125 ear, nose and throat clinics, 75 chiropody clinics, 45 orthoptic clinics and 40 audiometric clinics ; there was also a small number of special investigation clinics, *e.g.*, for rheumatism, asthma and enuresis. Rather more than 2 million children were examined at periodic medical inspections and a somewhat larger number were reinspected or specially examined at the request of parents, teachers, nurses, or other persons, about 3½ million children were dentally inspected and about 1½ million received dental treatment. About 60,000 handicapped children were in special schools and under supervision by the school health services."

U.S.S.R.

In the Soviet Union, the school health service is a continuation of the health service for pre-school children which is a comprehensive scheme from birth till the children complete elementary education. Children between two months and one year have nurseries; for such children the nursery has a staff of six nurses and a doctor, for those between one and three years four nurses and a doctor and for children from the fourth to the sixth year there are Kindergarten schools with three trained nurses and a doctor for every group of 100 children. They are given well-balanced food at these centres and those requiring expert treatment are sent to polyclinics or paediatric hospitals.

prophylactic inoculations are begun at these centres and carried through school age. Smallpox vaccination is done within three months of birth and repeated every fourth year so that every person gets the fifth vaccination by the 21st year. B.C.G. vaccination is compulsory. It is begun with two weeks of birth. It is also repeated five times—the last one being in the 16th year of the individual. Inoculation with the Triple Vaccine is also obligatory; three doses in the second half of the first year and another dose in the third year. Diptheria toxoid inoculation is repeated in the sixth, ninth and twelfth years. Vaccination against poliomyelitis is also compulsory. As a result of these vaccinations, it has been claimed that not only small-pox but also diptheria has been eradicated. There is no tuberculosis in children and after compulsory polio-vaccination, the incidence of this disease has also become negligible and the few cases that have occurred were milder. All schools with 800 or more pupils have full-time doctors and nurses who refer the pupils when necessary to paediatric polyclinics. There are also school nurses and dentists for schools.

U.S.A.

No uniform system is followed in all the States of U.S.A. Frequent health study and survey work are undertaken on an elaborate way to ascertain the effectiveness of the programme followed and suitable changes are made in the programme wherever necessary. The Department of Health and the Board of Education jointly work in relation to planning, executing and supervising the school health programme.

Many individuals and community agencies are involved in providing the medical and health personnel for school health services in the United States. Many school boards employ nurses, while some school boards in the larger metropolitan areas employ their own school physicians. Other schools contract for or receive their health services from local and state health departments. Schools frequently arrange for part-time services of practicing physicians and dentists. In some instances, voluntary agencies provide some health services and personnel to the schools. However, the State report indicate that most school health service personnel are under the jurisdiction of school boards and that a majority of school nurses are now employed by school boards. In communities where agencies outside of the school provide school health personnel, a school-community health council or co-ordinating group has generally proved to be an effective means of administering the school health services programme.

Health services are generally restricted to the school-age child. In a few instances, schools provide services to teachers and other school personnel. The school health service programme in the United States is predicated on the principle that the family has primary responsibility for the health of the school child. In general, then, medical treatment is not provided by local schools except in the case of emergencies. While some states have public health laws or school regulations requiring immunizations against diseases such as smallpox, the local boards of education generally establish these policies. Diphtheria, whooping cough, tetanus and smallpox immunizations are most frequently required of school children. A growing number of schools require that children be immunized against poliomyelitis. In some instances, school nurses are assigned on the basis of a pre-determined ratio of students to nurses or to a certain number of schools. Emergency care programmes are usually developed by the local school district. In some instances, state departments of education and health have developed suggested emergency care programmes for the guidance of local school officials.

In some states in the United States, school health services and personnel are considered a part of the community health services programme. In such cases, a working arrangement exists between educators and health officials whereby the local health departments provide the necessary health personnel for the services of the schools. To a considerable extent, the quality and extent of these programmes in the schools depend upon the local health departments; ability to provide these services. Other agencies such as welfare departments, medical societies and voluntary groups are helping to provide health services to schools. In some of the more rural areas of the United States where there are no local health departments and schools do not employ health service personnel, schools depend largely upon the parents of children to protect and promote the health of the school child. The P.T.A. is an effective organization in the promotion of school health. One of its major objectives is to promote the continuous health supervision of the school-age child.

The correction or treatment of health problems or defects revealed by the school health programme is usually accomplished through the nurse-teacher-parent and physician conference. The effectiveness of this collaboration or follow-up programme varies greatly from one school to another and usually depends upon the ability of the school personnel to enlist the interest and co-operation of the parent in getting the necessary treatment for the child. Most communities provide treatment to those who cannot afford it. Many states use a dental health card which is sent home with the child indicating the dental treatment needed. Experiences show that a certain proportion of parents have to be contacted personally before the follow-up treatment is undertaken. Getting correction for the remedial defects or treatment for the health problems discovered at school is a continuing problem. However, school health service personnel and teachers are now giving greater attention to contacts with the home and community agencies to achieve the needed follow-up. For example, one state reported that their school nurses are now spending approximately half of their time in the community working with families, medical and dental groups, and community agencies to achieve the desired follow-up.

France

The French Ministry for National Education has a Department of School and University Health which includes : a central coordinating body ; supervisory doctors ; regional doctors (one per university); and departmental doctors assisted by area and school doctors. This staff of about 1,000 is being placed under the civil service system. Private practitioners paid on an *ad hoc* basis and school and university social workers employed by the State or the District further strengthen the department. The school health services cover all school-age children, including college and university students. Furthermore, public health service officers provide medical supervision for private school children. The medical staff gives emergency treatment. They do not assume the role of practitioners (except in universities); they communicate their findings to the family doctor or specialist. In case of emergency, including illness and accidents, a report must be prepared by the headmaster and the health service. Transportation of children to an appropriate institution is made by previous agreement with the family. Teachers report their health findings to the school health staff, and receive health records for the purpose of adjusting school work to children's health. The family is kept informed of general findings, but detailed medical observations are communicated only to the doctors concerned. All these examinations are made systematically. The scope of the school health system extends to the certification of summer camps recognized by the Ministry of National Education.

Japan

Health services are regarded as an integral part of school education Besides health teaching, the school has a health service organisation composed of the school doctor, dentist, pharmacist and nurse. Such staffs do not always stay in school but give medical examinations from time to time when required by the school. The school also cooperates with health centres conducted by agencies outside the school. Health services are conducted by cooperative efforts of the school, the Ministry of Education, health centres and other medical agencies. They are limited to school children, as ordained by the school education law. Medical personnel are assigned to every school except in villages where no doctors are located. Immunizations are required. Inoculations for smallpox, diphtheria and typhoid fever are given when children enter a primary school and when they graduate. In an emergency, the school doctor, nurse or a doctor living near the school is asked to give medical treatment. When periodical health examinations are given in the school, the results are reported to the family, with a request that the parents may provide medical treatment at home. School, home and community systematically colaborate with the School Health Council.

Philippines

Public school medical, dental and nursing services are administered by the Bureau of Public Schools, Department of Education. They are conducted by such technical personnel as school physicians, school dentists, and school nurses, all government employees. Students needing guidance and counselling owing to home conditions are referred to such agencies as child-guidance clinics, the National Mental Hospital out-patient department, and the Social Welfare Administration. School health services operate on a division or city level. Generally, each school division has a complement of one school physician, several school dentists and school nurses. The number of school dentists and school nurses assigned depends upon the number of pupils enrolled in the division or province.

At the beginning of the school year in June, a health conference is usually called by the school superintendent. It is attended by the division health supervisor, school physicians, school dentists, school nurses, other school personnel, personnel in the Department of Health, interested parents and lay leaders in the community. The planning and formulating of programmes and activities for the year are discussed. Plans are, however, made flexible enough so as to encourage local initiative and modification of emphases to meet changing health conditions and problems in a particular community. Each group assumes responsibilities and contributions in terms of personnel, facilities, and other resources. Both the technical and school authorities believe that the provision of maximum health services does not interfere with the learning process. Every school is equipped with a clinic equipped with medical supplies and instruments for the treatment of simple eye, ear, nose and throat infections, common skin diseases and minor ailments. The physician's health examination, medical consultations, and inspections by the school nurses take place here. Interviews with parents and examinations of children with special ailments are also held in the school clinic.

In the school clinic an emergency bed is standard equipment. While waiting for the doctor's arrival, the child is kept in the clinic under the care of a nurse or of a teacher trained in first-aid work. The parents are notified, and the doctor advises the parents and nurse what to do with the patient. In other instances, such as when a child is sick with measles, the parents report the case to the teacher, and the teacher in turn reports the matter to the principal and the nurse. The nurse visits the sick child at home, gives instruction to the family regarding home nursing techniques and procedures for controlling the disease. The nurse further informs the parents that the child should not return to school until the doctor gives him a medical certificate stating that he is free from the disease and will no longer be a health hazard to others.

Ceylon

The school has no direct legal role in the provision of health services. There is a Government Department of Health and Sanitary Services which provide a Schools Medical Service under the direction of the Schools' Medical Officer. The personnel for this service are all employed by the Government to provide health services in the school in cooperation with school authorities. The personnel of the Schools Health Service examine children in the school for any signs of illness or defects at the Kindergarten level, at the fourth standard level and again at the seventh standard level. Parents are advised to be present at this inspection, and if defects are discovered the children are sent for treatment at the clinic run by the Schools Medical Service. But these clinics are available only in Colombo. Children in outlying areas have to go to the nearest hospital for outdoor treatment. Treatment is free at the Schools Clinic and in all the hospitals and dental clinics. Clinics for dental defects have also been set up in certain schools at the expense of the Government. There is usually a dental nurse with the necessary equipment for treating children for dental defects. The dental clinic in a particular school is meant to care for children not only of that school but for children of other schools in the area as well. It has to be emphasized that the number of doctors and nurses assigned for school health programmes is totally inadequate, and therefore, only some of the town areas get the help of the School Medical Services.

APPENDIX B-III

Immunisation

The following table shows the immunisation programmes taken up by different countries against diseases prevalent there.

Disease	*Required*	*Optional*
Cholera	Korea Philippines Thailand	China** India**
Diphtheria	China France Iran Italy Japan N. Zealand Panama Scotland	Canada Gamia Malta N. Ireland Philippines U.S.A. Yugoslavia**
Dysentery . . .	Philippines	

**Required when epidemic.

Disease	*Required*	*Optional*
Para-typhoid	Korea	
Poliomyelitis	Panama	Belgium Canada Italy England Luxembourg Malta N. Ireland N. Zealand Sweden Switzerland** U.S.A. Yugoslavia
Smallpox	Belgium Canada* China Denmark France Iran Italy Japan Korea Luxembourg N. Ireland Panama Philippines Sweden Thailand Yugoslavia	England Gambia Ghana** U.S.A. (in some States) Nyasaland
Tetanus	Iran Panama Scotland	Gambia N. Ireland U.S.A.
Tuberculosis	China France Panama Switzerland** Yugoslavia*	England Italy Malta Philippines N. Ireland
Typhoid	Japan Korea Philippines Thailand	China** Gambia* India** Malta Yugoslavia** U.S.A.
Whooping Cough	Iran N. Zealand Panama Scotland	England. Gambia Ghana** U.S.A.
Yellow Fever		Gambia Ghana**

*Generally.

**Required when epidemic.

Source.—Child Health and the School—World Confederation of Organizations of the Teaching Profession—1960.

APPENDIX B-IV

Statement showing the State-wise plan provision for School Health during the Third Five Year Plan

States/Union Territories	Provision for (1961-66)
	(Rupees in lakhs)
1. Andhra Pradesh	6.00
2. Assam	2.00
3. Bihar	15.00
4. Gujarat	..
5. Jammu & Kashmir	5.00
6. Kerala	..
7. Madhya Pradesh	4.00
8. Madras	20.00
9. Maharashtra	18.00
10. Mysore	10.00
11. Orissa	2.00
12. Punjab	6.00
13. Rajasthan	4.00
14. Uttar Pradesh	..
15. West Bengal	20.00
TOTAL (*States*)	112.00
16. Andamans	0.50
17. Delhi	10.00
18. Himachal Pradesh	0.50
19. Laccadives, etc.	..
20. Manipur	..
21. N.E.F.A.	1.50
22. N.H.T.A.	..
23. Pondicherry	..
24. Tripura	3.00
TOTAL (*Union Territories*)	15.50
GRAND TOTAL	127.50

APPENDIX B-V

Medical Examination and Follow-up Report of 33 High Schools in Poona-1957

Total No. in High Schools	22213 (Boys 14100, Girls 8113).
No. examined	19845 (Boys 12363, Girls 7482).
Health Class A	Good. 8725 (Boys 4904, Girls 3821).
Health Class B	Average. 10608 (Boys 7236, Girls 3372).
Health Class C	Below average. 512 (Boys 223, Girls 289).

History analysis of disease during childhood.—*In* 19845 *examined.*—Smallpox-65; Whooping cough-12; Typhoid-153; Jaundice-13; Accidents-3 plus Pneumonia-13; Measles-63 plus Diarrhoea-3 plus Chickenpox-56 plus Diphtheria Dysentery-6: Mumps-13; operations (excluding Tonsils removal)-22 plus Tonsils removed-34; rest of other diseases-3772. Normal history in 15843 with some or the other defects-4002.

Diet:—*Studied No.* 19845. In hostel-386; from home-19459; vegetarians 12684; non-vegetarians-7161.

Name	Once	Twice	Thrice	4 or more times	Nil
					No. of drink
No. of Meals a day . . .	2	19333	510	..	1130
No. of Tiffins a day . . .	15937	989	47	..	2872
No. of times a day Tea . .	4951	5851	204	25	8814
No. of times a day Coffee . .	2342	1452	35	2	16014
No. of times a day Milk . .	3953	2239	187	5	13461

Vaccination.—*No. Calculated* 19845. Done primary in 19463, Secondary in 12645. Not done 382. This number was re-checked got vaccinated later on B. C. G. No. calculated 19845. Done in 116, not done in 8179.

Defects detected in the general Medical Examination.—Fast pulse -51, Heart disease-27, Anaemia 23, Poor physique-2, Respiratory troubles-8, Digestive disturbances 9, Urine troubles-2, Skin diseases-125, Joints and bones, etc. troubles-66. Cervical lymph glands enlarged+ 125, ++27 +++1. Total 153. Defective eyesight-2363. Eye disease 79, Teeth caries-2985 and dirty-827. Ear trouble-37, Nose trouble-23. Throat affection -3, Tonsils englarged+429,++942,+++236,++++17. Total No. 162. Rest of the diseases-13.

Defects in Boys. *No. Calculated* 12363. Hydrocele-9; Hernia-80; Phimosis-987; Undescended Testicles-49; all other combined-5. Total No. of defects 1130.

Girls. *No. Calculated* 7412. Started M.C. in 3079. Not yet started in-4412.

Primary amenorrhea-1; Menorrhagia-41; Dysmenorrhea-27; Other diseases combined-9. Total No. of defects 78.

Medical examination reports sent to guardians—22213.

Follow-up work entrusted to S.H.A. by guardians and done as follows :

Department	No. Entrusted	No. Followed-up
1. Eyes	49	49
2. E. N. T.	14	14
3. Teeth	25	25
4. Surgical	14	14
5. Medical	6	6
TOTAL NO. ENTRUSTED .	108	108

APPENDIX B-VI

Integrated plan for the maintenance of health of students in Calcutta—Department of Health, West Bengal

1. Preamble

1.1. It has been estimated that there are over 32 lakh students in various institutions in the State of which about 3.85 lakhs are in Calcutta proper. In view of the heavy congestion of population the area with high incidence of tuberculosis, endemic presence of cholera, smallpox, diphtheria, etc., the health hazards of the student community in Calcutta is without doubt highest in the State. A survey among students undertaken by the University of Calcutta in 1954 revealed that only 23 per cent had good nutritional status, 34·3 per cent average and 42.7 per cent poor. The incidence of disease amongst the students community was found to be of the following order:—

Name of Disease	Percentage
Nutritional disorders	40·5
Defective vision	30.0
Carious tooth & pyorrhoea	9.2
Skin diseases	4.1
Enlarged tonsils	2.7
Enlarged spleen	2.9
Diseases of heart and lungs	1.4
Other minor ailments	9.2

1.2. From the data available it is estimated that there are about 3.85 lakh students in Calcutta of which about 85,000 are college students including about 18,000 students in professional colleges, and the balance school going children. Within the area of Calcutta Corporation there are about 262 High Schools, 59 Junior High Schools, 457 Primary Schools managed by private bodies and 248 Primary Schools managed by the Calcutta Corporation. There are about 40 colleges including those imparting training in professional subjects.

1.3. Although no comprehensive data is available for the morbidity trends amongst the student community in particular, we may, for purposes of planning, work on the data available from the survey undertaken by the Caclutta University. This survey further revealed that 80·4 per cent of the student population do not suffer from any illness or, if they do are cured in less than a week, 5.1 per cent get cured in one week, 4.3 per cent in two weeks, 0·6 per cent in three weeks and 9·6 per cent in four weeks and above; or in other words, about 25 per cent of total sick get cured in one week, 20 per cent in two weeks, 5 per cent in three weeks and about 50 per cent in four weeks.

1.4. We do not at present have any well-knit organisation for the "Health Care" of the Student community in the city. The Corporation of Calcutta have a small number of part-time doctors for their Primary Schools, who at best can medically examine a student one in 2 to 3 years; some of the other schools also have part-time doctors on small remuneration, whose output is not better. The University of Calcutta have recently opened four clinics for their students where a degree of organised effort to follow-up of cases for rectification of defects is expected. Besides these, there are some voluntary organisations for assisting students in Health Care. All efforts made at present can at best give relief to only a small section of the student community. There is, however, no facility at present for preventive care nor is there any intensive drive for imparting "Health Education" to the student community at large.

1.5. The need for an organised "Health Service" for students can hardly be overemphasised. Our cherished goal of 'positive health' outlook cannot be fulfilled without an all-out effort to provide adequate facilities for a comprehensive medical care and health education programme for this younger group of the population whose good health is vitally important for building the nation. Besides, in years to come, they must be the torch bearers to transmit the cherished target to the population at large.

1.6. A comprehensive service of the nature proposed would no doubt need consideration of various aspects, starting from preliminary medical examination to detect nature of disease amongst those unfit, with facilities for the rectification of the defects by adequate treatment, to an all-out effort on preventive and health education aspects of the programme with a view to minimise further risks in future. The implementation of such a comprehensive programme, apart from heavy financial commitment, would entail many administrative adjustments; hence it should be properly phased to make the task easier. Broadly speaking, the following may be the phases:—

(a) *First Phase*

(i) Facilities for routine medical examination of all students in their respective schools and colleges. Institutions will be provided with adequate equipment for examination of students.

(ii) Arrangements for special out-patient clinics for treatment and follow up of cases found to be suffering from a disability.

(iii) Provision of specialist services including pathological and X-ray service at clinics or at outpatient departments of specified hospitals.

(iv) Sanitary inspection of schools, colleges, hostels and boarding houses resided by students and preventive and health education services through the institutions.

(b) *Second Phase*

(i) Provision of beds in a special hospital for students. To start with we may provide 300 beds (200 male and 100 female).

(ii) Provision of adequate facilities for the maintenance of an academical atmosphere in the special hospitals, or in other words, development of "Student Culture Homes" in the vicinity to enable even partially fit students continue their studies unhampered as far as possible. Such homes should also provide recreational and health education facilities.

(c) *Third Phase*

(i) Provision of domiciliary service for extension of medical care in their homes.

(ii) Provisions of a domiciliary preventive service including service for the early detection of disease.

(d) *Fourth Phase*

Expansion of hospitals and culture homes to meet the full requirement in the light of the experience gained.

2. Proposal

2.1. Student Health Board.—A statutory body should be incorporated for the general administration of the services, supported by assistance from the State Government, Universities, other institutions and such voluntary organisations as may be necessary.

2.2. Phase of the Programme.—First phase of the programme will be implemented in the first instance, followed by second phase as soon as possible thereafter.

2.3. Routine Medical Examination.—Normally all students will be examined once a year. Such examination will be conducted in schools and colleges. Necessary equipment will be provided in all large institutions. Small institutions may be attached to large ones or may be pooled.

2.4. School and College Medical Officers.—Annual routine medical examination will be conducted by local practitioners as a general rule on panel system, payment being made on *per capita* basis. Students found unfit for any cause will be referred to special clinics for treatment and follow-up. Students falling sick during the year will also be examined by the Medical Officer as soon as possible after he or she resumes attendance to the classes after sickness. Such examination will be in addition to the routine annual medical examination. Cases requiring follow-up treatment will be reported to the Zonal Headquarters for action.

2.5. Diagnostic and Specialist Service.—Outpatient clinics of certain specified hospitals on zonal basis will provide special outpatient service ncluding diagnostic and specialist service for treatment and follow-up of cases referred to by school and college medical officers. Cases may also attend directly for treatment and will be provided necessary relief on submission of the authorised Medical Record Book signifying their identity.

Owing to high incidence of certain types of disabilities, the Specialist follow-up service for student community should include ophthalmic, ENT, Chest and Dental Services as well.

2.6. Preventive Services.—In addition to usual vaccination for smallpox, the preventive services should include immunisation against diphtheria, poliomyelitis, TAB as a routine measure, and cholera as and when necessary.

2.7. Sanitary Inspections and Health Education Services.—Normally such services will be provided by the respective school and college medical officers. A supervisory control will, however, be maintained by Student Health Service staff of the State. Materials for Health Education will be supplied by the Department of Health of the State.

2.8. Load of Work at Outpatient Departments and Hospitals.—Normal sickness rate being about 3 per cent about 11,400 are expected to be constantly sick. Of these, 75 per cent generally take advantage of Outpatients' Service, *i.e.*, about 8,550 or, say 9,000 are expected to attend outpatients' departments daily, for which adequate provision will be required. This commitment will have to be met by providing outpatient service on zonal basis. It is estimated that about 1200 beds would be necessary to provide beds for those requiring hospitalisation.

2.9. Special Hospitals and Culture Homes.—It has been estimated that about 1200 hospital beds or 3 beds per 1000 students would be necessary to provide adequate cover. For the present we may establish two hospitals—one for male students of 200 beds and the other for female students of 100 beds. Culture homes as may be considered desirable may also be established along with the hospitals.

2.10. Records of students.—Health records of all students in the school or college will be maintained by institutional authorities. It may be desirable to allot one or two teachers for the purpose and they may be paid a small allowance if necessary, for the work done. In the case of primary and other schools with young children below 14 years, it would also be necessary to train some teachers for recording growth of children. For young children, who grow faster more frequent recording of some data would indeed be desirable.

2.11. Overall Supervision.—Heads of the institutions should be made to take an intelligent interest in respect of his or her students to ensure that the services are properly maintained. He should check records, ensure proper follow-up of defective cases, and maintain overall supervision.

2.12. Active Co-operation between Departments of Education & Health and various institutions.—In order to make the scheme a success, it is obvious that active co-operation between the two Departments and also educational institutions, students at large, their guardians and staff and institutions under the Department of Health, would be incumbent. All concerned must implicitly believe in the need for a scheme of such nature and work for its implementation to ensure success.

3. Financial Commitments

3.1. The financial aspect of the programme will depend on the degree of relief envisaged in the scheme. On the basis that phasing the programme will be as laid down in para 1.6, we may, for the present, consider the cost of implementation of the first phase of the programme, based on the following assumption:

(a) The programme for Student Health Service shall be an integrated scheme with the Domiciliary Health Service Scheme for low income group, hence no additional cost for overhead supervisory staff may be considered for the purpose.

(b) Services at zonal headquarters and dispensaries suggested for the Domiciliary Service Scheme for low income group shall also be able to take on the outpatient load for the Student Health Service.

(c) Specialist services included for the Domiciliary Service Scheme shall also be available for the School Health Service Scheme. Additional specialist cover for Ophthalmic, ENT, Chest and Dental Services will have to be included in this scheme.

(d) Mass Miniature Radiography would be provided to ensure chest examination of all students as a routine procedure.

(e) All equipment, including equipment for routine medical examination at educational institutions, specialist services, mass miniature radiography and other expenses of non-recurring nature would be provisioned by arrangement prior to the implementation of the Scheme.

(f) Owing to the fact that at the inception of the scheme a heavier load will have to be borne, until all students have been examined and necessary corrective measures taken, mean between the estimated number requiring relief at the inception of the scheme and the estimated number of fresh cases each year due to fresh admissions of students to the lowest classes in the schools each year, has been taken for purposes of calculating the annual recurring cost, since it is visualised that the back load at inception will take some years to clear.

(g) Total school going children being three lakhs, and assuming that ten years schooling is the usual feature, it has been assumed that about 30,000 students are newly admitted to the educational institutions each year.

(h) For estimating the number of students requiring follow-up services by ophthalmic, ENT, chest disease and dental specialists, the percentage figures of such cases as noted in para 1.1. has been taken as the guide. For such services an *ad hoc* cost @ Rs. 5/- per case has been assumed for the purpose of calculating the annual recurring cost.

(i) Annual recurring cost for Ophthalmic Service excluding cost of spectacles :

30 % suffer from defective vision.

30 % of 3.8 lakhs *equals* 1,14,000 students.

In view that most of the students in colleges and higher classes have had relief already, for purposes of calculation of the cost, it may be assumed that only 20 per cent still would require relief, most of them being students of lower classes.

Hence, number requiring relief *equals* 1/5th of 1,14,000 *i.e.*	22,800
Add 30 % of 30,000 *i.e.*, (new entrants)	9,000
TOTAL	31,800
Mean as per para (f) : ½ of 31,800 *i.e.*	15,900
Total annual recurring cost @ Rs. 5 per case : 15,900 × 5 *i.e.*	Rs. 79,500

(ii) Annual recurring cost for RNT service excluding cost of hospitalisation for operative procedure, if necessary :

Incidence of RNT cases : 2.7 %

2.7 % of 3.8 lakhs *equals*	10,260
Assuming that 50% of students, generally of higher classes have had relief, number still requiring relief	5,130
Add 2.7 % of 30,000 new entrants	810
TOTAL	5,940

Mean——2970

Total annual recurring cost @ Rs. 5 per case : 2970 × 5 *i.e.*	Rs. 14,850

(iii) Annual cost for Dental Service excluding cost of dentures, metal crowns, etc :

Incidence of dental cases 9.2 %

9.2 % of 3.8 lakhs *equals*	34,960
Assuming that 50 per cent of students have had some relief, number still requiring full relief	17,480
Add 9.2 % of 30,000 new entrants	2,760
TOTAL	20,420

Mean—10,120

Total annual recurring cost @ Rs. 5 per case : 10,120 × 5 *i.e*	Rs. 50,600

(iv) Annual cost for detection and specialist service for chest diseases (TUBERCULOSIS) :

Mass Miniature Radiography examination of all students—existing 3.8 lakhs plus 30,000 new entrants each year = 4.10 lakhs.

Mean—2.05 lakhs

Annual recurring cost @ Rs. 2 per M.M.R : 2.05 × 2 *i.e.*.	Rs. 4,10,000

For specialist Service

Incidence : 1.4 %

1.4 % of 3.8 lakhs	5,320
1.4 % of 30,000 (new entrants)	420
TOTAL	5,740

As the cases would require prolonged treatment, all cases will need relief.

Total annual recurring for specialist service and recheck by skiagrams @ Rs. 10 per case 5,740 × 10 *i.e.*.	Rs. 57,400
TOTAL COST :	Rs. 4,67, 00

(i) Service for medical examination of students at their institutions will be on panel system, on a capitation fee of 0·50 nP. per student per year. Examinations will be conducted as laid down in para 2.3 and 2.4.

(j) Drugs will not be supplied by panel practitioners. All prescriptions shall be served at zonal headquarters or dispensaries as may be convenient. The panel practitioners may, however, be provided with adequate emergency drugs in a bag or box, which will be replenished by zonal headquarters.

(k) Cost of providing simple drugs is estimated to be about 0·25 nP. per day per case and for costly drugs Re. 1 per student per year. For providing pathological and X-ray service, excluding M.M.R. service, the cost is estimated to be Re. 1 per student per year.

(l) *Preventive Active Immunisation Service.*—Active immunisation against diphtheria by triple vaccine of the vulnerable group (5—10 years old children).

Total population at present : 30,000 × 5 *i.e.*	1,50,000
Add yearly intake	30,000
TOTAL	1,80,000
Mean—90,000 Estimated cost *per capita* @ Rs. 10 per annum including overhead : Total cost 90,000 × 10	Rs. 9,00,000
Vaccination against smallpox and inoculation against TAB & Cholera @ Re. 1 per student including cost of overhead :	Rs. 3,80,000
TOTAL	12,80,000

3.2. Based on the above, the annual financial commitment is likely to be as under:

	(Rs.)
(*a*) Capitation fee to panel practitioners @ 0.50 nP. per student	1,90,000
(*b*) O. P. D. Service for 9,000 cases daily cost of ordinary drugs @ 0.25 nP. per case per day for 300 working days in a year—9,000 × 300 × 0·25	6,75,000
(*c*) Cost of special drugs @ Re. 1 per student	3,80,000
(*d*) Cost of X-Ray Pathology services @ Re. 1 per student	3,80,000
(*e*) Cost of Opthalmic Service	79,500
(*f*) Cost of ENT Service	14,850
(*g*) Cost of Dental Service	50,600
(*h*) Cost of MMR and Chest Specialist Service	4,67,400
Total cost of curative and corrective service	22,37,350
(*i*) Cost of Preventive Service including active immunisation for diphtheria and poliomyelitis for vulnerable age-group only : Cost of small-pox & TABC	12,80,000
(*j*) Cost of materials for Health Education Service *ad hoc*	80,000
Grand total cost for the proposed Health Service for students	35,97,350
or say,	Rs. 36,00,000

NOTE.—This estimate is based on the assumption that the proposed scheme for Student Health Service would be integrated with the scheme for Domiciliary Service for low income group; in order to obtain the services of OPD Service staff, services of specialists for general diseases and overall services have not been included in the estimate.

4. Probable Recoveries to partially meet the cost.

4.1. *Contributions from Students.*—It is stipulated that some contribution will be paid by students along with their school and college fees. The Scale may be:

12 nP.—per month from Primary School and lower class students of Secondary Schools, which roughly form about half the numbers of students in schools.

25 nP.—per month from students in senior classes in schools, which would form about half the number of students in schools.

50 nP.—per month from undergraduate students in colleges except those in professional colleges.

Re 1.—per month from post-graduate students estimated at 1 % of college students, and also students in professional colleges.

The fee as above should be collected by each institution and placed at the disposal of the "School Health Board" to partly finance the scheme

Broadly speaking, about Rs. 12.8 lakhs annually should be thus available as contribution from students:—

	Annual recovery (Rs.)
From junior students in schools @ 12 nP. per month, for 1.5 lakhs . .	2,16,000
From senior students in schools @ 25 nP. per month, for 1.5 lakhs . .	4,50,000
From undergraduate college students @ 50 nP. per month, for 66,330 .	3,97,980
From post-graduate students : 670, and professional students : 18,000 @ Re. 1	2,24,040
TOTAL .	12,88,020

4.2. Contribution from Corporation of Calcutta, Universities, Institutions, University Grants Commission, should be able to cover most of the shortfall in income.

(*Please also* see *Appendix "A" below*)

APPENDIX "A"

Load of work

(1) Daily sickness or morbidity rate 3 % of 3·85 lakhs	11,550
20 % minor requiring no treatment .	2,310
75 % mbulatory suitable for O.P.D. treatment	8,662
5 % suitable for domiciliary treatment. . .	578
	11,550
*10 % of domiciliary treatment cases suitable for hospital admission.	58

*NOTE.—In view of the need to take in cases early for suitable hospital treatment in student community, double the usual rate has been taken.

(2) Calculation of stabilised beds necessary for student community at Calcutta :

Admissions daily	58
Number of beds required on 7th day (7 × 58)	406
Daily discharges from 7th to 14th day (25 % of 58) . . .	14
Number of beds required on 14th day [406 *plus* (58—14) × 7] . .	714
Daily discharges from 15th to 21st day (25 *plus* 20 equals 40 % of 58)	26
Number of beds required on 22nd day [714 *plus* (58—26) × 7] . .	938
Daily discharges from 22nd to 28th day (25 *plus* 20 *plus* 5 % equals of 58)	29
Number of beds required on 28th day [938 *plus* (58—29) × 7] . .	1,141
Daily discharges from 29th day onwards (100 % of 58) . .	8
Stabilised figure of beds required from 29th day onwards . . .	1,141
or say,	1,200 beds

(For rural and urban areas, please *See* below)

Rural & Urban Areas of West Bengal Except Calcutta

Financial Commitment

Supervisory control will rest on the officer of the Health Directorate at district, sub-divisional and block levels. Hence no additional cost for supervisory staff need be considered.

Based on above, the annual financial commitment is likely to be as follows :

	(Rs.)
1. (a) Honorarium to medical practitioners @ 0·50 nP. per annum per student (Total number of students : 33,64,378)	16,82,189
(b) Cost of running special OPD clinics (numbering 1350) at places where no Health Centre or Dispensary is located @ Rs. 200 per clinic)	2,70,000
2. *Cost of Drugs.*	
(a) In places where State Hospital, Health Centre or Dispensary is located, the expenses are already incurred ; hence no extra cost.	
(b) In places where no Hospital, Health Centre or Dispensary is located (numbering 1350) : In such places special OPD clinics will be run. Rs. 1,000 will be provided for drugs for each of such clinic. . .	13,50,000
TOTAL .	33,02,189

The cost for the scheme comes to Rs. 33,02,189 in addition to the amount which is already being spent in areas having hospitals, health centres or dispensaries. This additional amount may either be met out of the State finances or part of the expenditure may be met by levying a small fee per student per year.

APPENDIX B-VII

Note on Health Survey and Promotion of Nutrition among the School Children

By

Medical Inspector of Schools, Hyderabad (Dn.)

1. **Prevention of Diseases.**—The most important preventable diseases among school children, who are to be protected against, are Smallpox, Diphtheria, Tetanus, Whooping Cough, Cholera, Plague, Leprosy, Filaria, Tuberculosis of different forms, and Malaria. Mention may be made of Venereal diseases and delinquency, the former in high school and college stages, and the latter in the lower stages if discovered.

For smallpox, there is the time-honoured Government of India Act as well as the State Act which clearly states that no child should be admitted into any school without possessing visible marks of Primary vaccination, or marks of having smallpox already suffered by them. In view of the intensive programme of eradication of smallpox, it should be clearly stated that the responsibility of admitting pupils in schools is that of the educational authorities, who should see that no child is admitted without successful vaccination marks. Next comes Cholera and Plague inoculations during times of epidemics. This must be made compulsory and the inoculations to be done as and when needed. Every child should be protected with the Triple Vaccine, against Tetanus, Diphtheria and Whooping cough. A start has already been made this year in Secunderabad schools by the Medical Officer of Health. This should be made compulsory in all schools both in urban and rural areas, to be carried out by the school medical officers and asssisted by the School Health Visitor and the Health Inspector. B.C.G. vaccination against Tuberculosis is already being carried out. With a proper coordination between the B.C.G. Section and the School Health, it could be systematically carried out. Early cases of T.B. discovered during inspection, should be notified to parents and arrangements made to see that they are examined in the T.B. Clinics with X-ray, and proper treatment instituted. Regarding Leprosy, early cases detected should be promptly notified and arrangements made for their treatment in the nearest centres. In both T.B. and Leprosy, many pupils are poor and the financial implications regarding transport and treatment should be borne by the Government in deserving cases. Infective stages of both Tuberculosis and Leprosy should be suspended from Schools, till they are made and certified infection free.

2. **Medical Care.**—School children after the examination by the medical officers, if found defective, are given advice through confidential slips and asked to undergo treatment to remedy the same. In schools where the staff take keen interest certainly see that they are treated and return the slips with the signature of the hospital in-charge or doctor who treated them. But in many, the slips are not even handed over to the pupils and the staff of the school do not take any interest to contact the parents with the advice slips for treatment. This is highly deplorable and unless proper cooperation comes from the educational authorities, the follow-up will not be made easier. In schools like Goshamahal High School, Grammer School All Saints School, and some others they take really keen interest and the treatment is compelled to be restored to and recorded. A definite purpose

could be served only when the educational authorities are made to take a keen interest in the school health programme, and it will be consequenty easy to maintain statistics, and proper survey in all respects. In cases of infective cases, it should be insisted that the school authorities do not allow the pupils to come to school without producing the necessary fitness certificates, as it is done in certain schools. Here also there must be a definite circular from the D. P. I. to the schools not to admit such cases unless they produce proper fitness certificates after infectious diseases.

Ordinary cases are treated in school clinics, or nearest dispensaries and cases needing special attention are referred to specialists in Hospitals, where the cooperation of the specialists are required and it will be advantageous if special days and time for the school children is allotted by the kind cooperation of the Director of Medical Services. All treatment including specialised treatment, provision of spectacles should all be free for the school children. Wherever necessary, transport faciltities should be provided.

3. **Follow-up Service.**—This is a very important factor in the school health programme and ordinary cases can be followed up by the Health Visitor and Health Inspector. Special cases, infective, such as Leprosy, T.B. etc., and Surgical cases should be followed up carefully by the School Health Officer, and progress noted. Here again the cooperation of the school staff and the parents is highly important, otherwise no tangible res could be achieved. The work done during the year, follow-up results obtained, and points for improvement should all be classified and incorporated by the School Health Officer in the form of an Annual Report for his unit.

4. **Nutrition.**—The nutrition of the larger percentage of children is generally poor. Cases of mulnutrition, under-nourishment, under-weight, and nutritional defects as anaemia, xerophthalmia, stomatitis, skin infections, dental defects, etc., are too numerous to mention. This can be only tackled in a multiangular way, *viz.*, lectures and propaganda on diet and exercise, health habits, and health education, and by providing the school children with milk for all pupils and supplementary diets. Since majority of the primary children are poor, a mid-day meal of balanced diet of a free nature should be provided as is done in Madras recently. In very many cases poor children come starving to schools purely on account of poverty. They have some thing in the morning and go empty stomach late in the evening. This fact is noted even in the city schools and the percentage of such pupils who do not carry any food or even tiffin for the afternoon is really very high.

A definite suggestion that could be put here is the supply of free Codliver Oil, and Calcium lactus tablets to such of the children who are undernourished would go a long way. Multi-vitamin tablets could also be made to be supplied. Such supplies could be made periodically to schools, and here again, it is the cooperation of the school staff that is needed for the proper and judicious distribution of the same. Of course, the supervision will be by the health staff, and the Health Officer. The above things are suggested in view of the cases noted regarding Vit. A deficiency as night blindness, exrosis, etc., and B. deficiencies mostly stomatitis, glossitis, etc., and dental due to Calcium deficiencies.

5. **Health Education.**—There is a separate section for Health Education and Propaganda, which could conveniently programme for schools for lectures, film shows, slides, etc., and general health, infectious diseases, and

nutrition. Also posters should be supplied to all schools for being prominently put up in their premises. This could be adequately achieved by a good coordination between the Health Education staff and the school health staff.

6. **Healthy Environment.**—Location of the schools is an important factor. Majority of schools are in rented buildings unfit for school purposes and some of them are even in public places such as temples. The ideal thing would be pucca Government buildings designed for school purposes. This needs a lot of finance and cooperation of the Engineering Department. Location should be healthy, free from noise and buzzle of the people, should have good water facilities, and proper sanitary arrangements for lavatories and urinals. Another important factor is proper cross-ventilation and good lighting. Proper and hygienic furniture should be provided according to the stages of schools, *viz.*, Primary, Kindergarten, Middle and High Schools and Colleges. In many schools, there is inadequacy of the same and some primary schools have no proper flooring not to talk of any furniture. Children squat on the floor only. In some schools they have only benches and no desks and children keep writing material on their laps and write which is not conducive to their posture and vision.

Specific Suggestions

1. Arrangements for immunization of school children against Diphtheria, Whooping Cough and Tetanus by the Triple vaccine. Admission of pupils in schools after satisfying that proper visible marks of vaccination are present. Insist on this at the time of admission. T.A.B. and Cholera and Plague inoculations as and when needed. Education and propaganda regarding infectious diseases, general health and nutrition.

2. **Medical care and follow-up.**—The staff should be increased by one more medical officer so that he will be at the headquarters and attending to routine work and supervision. Two medical officers, one male and one female would be on tour at least 25 days in a month, and consolidate the work done in 5 days at the Headquarters. Index cards should be made to be properly maintained in schools, and transfer of these cards along with pupils with the leaving certificates, so that the record would be a continuous one and defects followed and results of improvement or deterioration made note of. The school strength is increasing by leaps and bounds, and it is not possible by the present way of examination specially in districts, hence it is suggested by Dr. Norton of W.H.O. that dilute exmination could be done in large numbers noting important defects at a glance and noting visible defects, and examining only those who one may feel need thorough check up. This was demonstrated by him and it is recommended that it may be adopted in the mofussil areas, whereby all schools to some extent could be covered. Arrangements to be made for the cooperation of the Specialists in Hospitals of cases referred to them by the School Health Officers concerned.

3. Primary Health Centres may not be entrusted with school health work, as they are fully engaged with their work. Minor ailments may be treated of school children in their jurisdiction, when they are referred to by the School Health Officer while on tour.

4. Promotion of nutritional standards among pre-school children, ought to be entrusted to the Bureau of Maternity and Child Welfare, and social welfare organisations.

5. Improving nutritional standards in school generally, arrangements should be made for balanced diet of a free mid-day meal. Supply of milk to all pupils in schools specially those undernourished. Supply of Codliver Oil, Calcium Lactas tablets, and Multi-vite tablets. Where mid-day meal is not possible, supplementary diet as biscuits, dry fruits and nuts may be given.

APPENDIX B-VIII

Some Observations

By

Dr. M. N. Rao, Professor, All-India Institute of Hygiene and Public Health, Calcutta, to the School Health Committee, Ministry of Health, Government of India.

1. As a member of a similar Committee recently appointed by the Government of India, I had an opportunity to go through the working reports and follow-up of similar Committees.

My impressions are that maximum benefit to the country is achieved only when :

(a) Minimum recommendations, but specific in nature, are made (obviously after a mature consideration), and

(b) A follow-up to implement those recommendations (a machinery may have to be created for the purpose, if necessary).

I am, therefore, outlining a few specific recommendations on child health based on observations and experience of another special branch of Public Health—Industrial Health.

2. **Definition.**—Both the ideal and the optimum have to be defined regarding :

(a) the age-group, and

(b) the agency.

(a) *The age-group* :

(i) **Pre-school child.**—Home car programmes are not well-developed in our country and hence the health care of the pre-school child may be limited only to the extent of the coverage extended by the primary health centre in the rural areas. In the urban areas, whichever local agency is responsible, *e.g.*, the corporation health department, might have to shoulder the entire responsibility.

(ii) **School child.**—Some recommendations in the past have been so very liberal and grandiose in social security that they could never be achieved *in toto* but resulted in giving rise to some undesirable repercussion on national level. The recommendations are better limited only to the extent they are practical and feasible. The ideal would be to cover the entire school going period but perhaps the recommendations would be practical if limited only to the first five years of the school going period.

(b) *The agency* :

There are so many factors in the programme :

The school.
The home.
The private agencies.
The community health agencies.
The State health department.

In an attempt to coordinate the agencies, maximum success may not be achieved due to the erroneous impressions basically in certain quarters of the country today that coordination of agencies is also sharing the responsibility. School health programme is a vital programme and coordinating agencies are best minimised. In national interests, specified recommendations by the Committee pinpointing the responsible agency and follow-up of the programmes would result in minimising the misuses ; like finding in open market for sale milk powder in containers with markings still sticking on as donation from country ABC for free distribution to the children of India.

I recommend, therefore, that the operating agency should be one. Governmental agency and the implementing agency the school itself and there should be direct access of one to the other without any intervening redtape. The teachers and the children are the best coordinators and this will build up a sound foundation for the future five-year plans as well. If a matching system is initiated between the school and other agencies, both governmental at a distance and non-governmental closely an additional incentive is created for a closer liaison between the school and parents on the one hand and the school and the private agencies on the other.

3. **Details.**—School health programmes may be developed in different directions :

(a) **Food:**—I do not propose to deal with the same as perhaps too many opinions have been given.

(b) **Sanitation.**—Adequate care and education of the child in sanitary habits, in food and drinking water, is recommended. Similarly in the use of sanitary conveniences. A programme of encouraging the child to look after the sanitation of the two ends of its own alimentary canal is perhaps as important a part of health education as planning for a scientific mid-day meal. National subsidies for type design construction and maintenance of drinking water facilities, dining space and sanitary conveniences are perhaps equally important subsidy programmes for those of the schools with permanent buildings. Such subsidies would also add incentives for future school constructions on scientific lines.

(c) **Control of communicable diseases.**—I have experience on sickness absenteeism records in more organised population groups like industrial workers. I do not recommend in the least the utilisation of absence from schools to analyse the sickness of the child, nor do I recommend to any extent the education of the teachers in diagnosis of diseases. The head of the school may, however, be trained in first-aid and in addition, simple household methods *e.g.*, detecting an obvious discharge from the ear or rash on the skin or using a thermometer for recording the temperature of a child reporting sick, etc.

(d) **Promotion of health.**—I feel that a school health programme should concentrate more on a positive health programme rather than a programme for control of diseases only.

In this connection, I would strongly recommend an individual health card for each child. This card should be compulsorily maintained by the school authorities and entries made by a physician who should compulsorily be made to examine each child at the beginning of the year.

This health card can be considered as a starting point for a positive health programme and promotion of health of the child. I would like to give an example of how inclusion of standard growth curves for Indian children are not readily available in India. As a part of the research programme of establishing physiological norms in Indians, the Section of Physiological Hygiene of this Institute has very nearly completed the growth curve study of children from 6 to 16 years' age. These or similar norms from other research centres can be freely supplied by a central agency to the schools as an incentive to scientific maintenance of the health cards. Simple anthropometric measurements like height and weight recorded in this card might also help health administrators in future years to assess the usefulness or otherwise of programmes like mid-day meals programme. These medical records must be considered essential records of the school just as admission register, pay register, etc.

Conclusion :

My specific recommendations for the third five-year plan, therefore, are :—

(i) Concentration only on the age-group 6-10.

(ii) Subsidy programmes on a matching basis for standard constructions and adequate maintenance of :—

(a) drinking water facilities

(b) dining spaces

(c) sanitary conveniences in schools with their own premises.

(iii) Compulsory annual medical examinations in the beginning of each year as per a standardised method, and compulsory maintenance of these medical cards by the School authorities.

(iv) Compulsory transfer of copies of these medical records when the child is transferred from one school to the other.

(Sd.) M. M. RAO.

APPENDIX B-IX

Suggestions for improving School Health Service in the country

By

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1. The laws of the country should make it obligatory on every State or local authority to provide a School Health Service for each city, town and district. Such a service must maintain liaison with a well-organised health centre and a district or city hospital.

2. The service should consist of :—

(i) School Medical Officers—Fully qualified doctors having in addition, either the diploma in Public Health or a Diploma in Child Health.

(ii) School Nurses—Possessing either a P. H. N. or Health Visitor's qualification;

(iii) School Dental Officers—Fully qualified dentists.

3. Medical Inspections :—

(i) Primary Schools—For primary schools, there should be two medical inspections, *viz.*, one on entry and the other at the time of leaving

(ii) Secondary Schools—3 such examinations are necessary, *viz.*, on entry, Class VIII, and Class XI.

The object of such examinations should be not merely to diagnose obvious disease or deformity and to treat or correct them but to assess the health and nutritional status of the child and to detect diseases or defects in their incipient or early stages, so that further progress of the same can be stopped and the child brought back to health. To attain these objectives a detailed history taking and complete physical examinations, are necessary in every case.

Besides the above, (i) special examinations of children when referred to by parents, teachers or school nurses ; and (ii) the supervision examinations of children previously found to have some defect or illness, are as essential as the routine periodical medical inspections.

For these examinations to be carried out efficiently, proper equipments and diagnostic sets including stethescope, otoscope, tuning fork, spatula, nasal and aural specula, spirit lamp, thermometer, a set of Ishihara's diagrams (for testing coloured vision), sterilizers, etc., must be made available in each health centre or in the school clinic where such examinations are to be done.

The results of these medical inspections need to be properly recorded and maintained in appropriate record cards, on the model of what is being followed at Singur or at Chetla. For the analysis of these data, statistical help must be available in the health centre or at the state local body headquarters.

It should also be remembered that the medical examination of a young child can never be reasonably complete, unless a parent or responsible adult who knows the child intimately, is present at the time of examinations. Hence more efforts have to be made than hitherto to have the father or the mohter being present at the clinic at the time of these examinations. In their absence, however, some basic informations about the child's life, *viz.*, sleep, appetite, bowel action, home behaviour and happiness could be obtained from the Health Visitor or Public Health Nurses home visit report.

4. **Sickness Absenteeism.**—No proper records of absenteeism in schools are now being kept. Where a scholar is absent from school without notice continously for a period of more than 3 days, the causes of such absenteeism must be ascertained by either the hygiene trained teacher or the school nurse preferably by home visits.

Where proper records of sickness absenteeism are kept by the school authorities, weekly statements to this effect should be submitted to the local M. O. H. or School Medical Officer. When properly kept and analysed, these records serve as valuable sources of epidemiological data not only for the school population but for the community as a whole.

Medical record is to be kept throughout the whole school life and after the child leaves school, the record should either be forwarded to the family or preserved in the family folder, at the health centre.

All cases of infectious diseases occurring amongst school children should be promptly brought to the notice of the School Medical Officer or the local M. O. H. for timely action.

5. **Immunisation.**—Immunisation against the following diseases should be carried out in school life as follows :—

(i) Smallpox . . .	Vaccinations or re-vaccinations at entry to school and at intervals of every 3-4 years and also during epidemic times.
(ii) Diphtheria and Tetanus	All new comers to the school should be immunised against diphtheria and tetanus, with two doses of 0·4 cc. each, at intervals of a month, of a suitable toxoid, preferably F. T. in the case of those who have not been previously immunised, while in others, a single booster dose of 0·5 cc. of the antigen will be necessary.
(iii) Whooping Cough . .	Since whooping cough is more common and serious in infants and pre-school children than in children at school, active immunisation of scholars is not necessary as a routine. Moreover triple antigen, which contains both diphtheria and tetanus toxoids and pertussis vaccine, is at times likely to give rise to severe reactions in children above 6 years and hence the use of this antigen in school medical practice for the prevention of diphtheria and tetanus may not be desirable.
(iv) Typhoid and Para-typhoid fevers.	Typhoid and para-typhoid fevers are quite important problems in school life. Although prophylactic immunisation with T.A.B. vaccine does not always offer a full guarantee against the disease, nevertheless, the value of prophylactic immunisation with phenolised typhoid vaccine has now been demostrated and hence steps should be undertaken to immunize

school children routinely with 2 doses of T.A.B. vaccine, at intervals of one month, given at school entry or soon thereafter and a repeat or booster dose at the age of 10—14 years.

(v) Cholera . . . . Though vaccination against cholera with the specific vaccine, may confer some benefit, and has been widely used in this and other countries where cholera is a problem, there is no full unanimity of opinion as yet, regarding the degree of protection and the duration of immunity conferred by it. Hence routine immunisation of school children with this vaccine need not be carried out except when an outbreak or epidemic is threatened in the area or the child is exposed otherwise.

(vi) Tuberculosis . . . All new comers at the school should be tuberculin tested using the single dose Mantoux test and the tuberculin negatives should be given B.C.G. vaccination and wherever possible, a mass chest radiography of all school leavers should be carried out and action taken if the child shows suspicious findings.

(vii) Poliomyelitis . . The problem of poliomyelitis in India as it stands today, does not demand a programme of mass active immunisation against the disease but protection of children belonging to certain socio-economic groups as suggested by the studies undertaken by the West Bengal Government in Calcutta, may be called for. Hence, if considered necessary, facilities for immunisation of children reading in the Public or European schools in India, with 3 doses of Salk vaccine may be provided for, in the school health programme of particular areas.

6. **Dental Examinations.**—Proper attention has to be paid to dental inspection at certain intervals, of all school children and adequate provision of dental treatment facilities including the orthodentic treatment, should be provided for in dental surgeries, more of which should be opened in district hospitals and health centres.

7. **Welfare Needs.**—More attention needs to be given towards providing for special educational facilities for handicapped children and to the welfare needs of children in general during school life , in the form of better hostel and recreational facilities, school meals, libraries, etc.

SCHOOL MEDICAL RECORDS

APPENDIX B-X(i)

Information in this record is CONFIDENTIAL

Form 10M

MINISTRY OF EDUCATION
UNITED KINGDOM

Main School Medical Records Card

1 Surname . . . . } Block Capitals Other Names	2 L.E.A.
Day Month Year Date of Birth..........	1. .... 2. .... 3. .... 4. .... 5. ....

3 Address

1.................................
2.................................
3.................................
4.................................
5.................................

4 School	Admitted	Left
1...........	....	....
2...........	....	....
3...........	....	....
4...........	....	....
5...........	....	....

5 Family History

Place in Family

6 Significant Home Conditions

Date

Father's Occupation ....

....

....

Mother's Occupation................

Approx. hours per day..............

7 Illnesses, Operations

	Age	Complications
Whooping Cough	......	....
Measles .	......	....
Scarlet Fever .	......	....
Mumps .	......	....
Chicken pox .	......	....
German measles	......	....
Poliomyelitis .	......	....
....		....
....		....

8 Prophylaxis . .	Age	Age	Age
Smallpox . .	......	......	......
Diphtheria . .	......	......	......
Whooping Cough	......	......	......
B.C.G. . .	......	......	......
....	......	......	......

9 Family Doctor

	Name	Address
1		
2		
3		

10 (Place tick in appropriate space)

	Educational Attainments			Regularity of Attendance	
	Good	Average	Poor	Satisfactory	Unsatisfactory
Entrant	......	......	....	......	....
Intermediate	......	......	....	......	....
Leaver	......	......	....	......	....

11 Summary of Findings

V=No defect ; O=Defect requiring observation ; T=Defect requiring treatment ; RS=Reference to specialist ; RGP=Reference to general practitioner ; PD=Permanent defect not requiring action.

Code No.	Date							
	Age							
	Type of Inspection {P=Periodic S=Special							
	Parent Present . {Y=Yes N=No .							
	Height							
	Weight							
1	Cleanliness							
	Infestation . . {Head .							
2	Body .							
3	Teeth							
4	Skin							
5	Eyes . (a) Vision . .							
	(b) Squint . .							
	(c) Others . .							
6	Ears . (a) Hearing .							
	(b) Otitis Media— {R . .							
	L . .							
	(c) Others . .							
7	Nose and Throat . .							
8	Speech							
9	Lymphatic glands . .							
10	Heart							
11	Lungs							
12	Developmental (a) Hernia .							
	(b) Other .							
13	Orthopaedic . (a) Posture .							
	(b) Feet .							
	(c) Other .							
14	Nervous System (a) Epilepsy							
	(b) Other .							
15	Psychological . (a) Development.							
	(b) Stability							
16	Abdomen							
17	....							
18	....							
19	Menstruation							
20	Physical S=Satisfactory .							
	Condition U=Unsatisfactory							
21	Initials of Medical Officer .							

12 Vision (acuity tests)	13 Colour Vision					
Date						
Without Glasses R .... L	....	....	....	....	....	....
With Glasses R .... L	....	....	....	....	....	....
Near Vision Without Glasses With Glasses..	....	....	....	....	....	....

14 Hearing (specify date, test and result)	15 Special Tests (specify date, test and result)
....	....
....	....
....	....
....	....

16 Special Educational Treatment (state category, recommendation and date)

....

....

....

17 Date	Defect Code No.	Initials of Medical Officer
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....
....	....	....

18 Employment (specify any type of employment considered unsuitable)

....

....

....

....

....

....

Appendix B–X (ii)

*Medical History Card designed by The Medical Officers of Schools Association, United Kingdom.

This certificate must be completed and signed by the parent or guardian before the pupil is sent to the school. The suppression of important information about the past or present health or about exposure to infection may be regarded as a breach of contract.

Name.............................. Dae of birth ....

1. Has the pupil had :--

Chicken pox .... If so, when ....
Diphtheria .... ,, ...
German Measles .... ,, ...
Measles........................ ,, ...
Mumps .... ,, ...
Scarlet Fever .... ,, ...
Smallpox .... ,, ...
Whooping Cough .... ,, ...
Typhoid Fever .... ,, ...
Rheumatic Fever .... ,, ...
Other Infectious Disease .... ,, ...
and what ....
....

2. Has the pupil been :—

Successfully vaccinated .... If so, when ....
Immunized against —
Diphtheria .... ,, ...
Whooping Cough .... ,, ...
Any other disease .... ,, ...

3. Has the pupil had fits, discharging ears, rupture, asthma or chronic catarrh, nocturnal incontinence of urine. If so, give particulars including indication of frequency and date o last occurrence.

....
....
....

4. Has the pupil had any other serious illness. If so, give particulars and dates.

....
....

5. Has the pupil had any surgical operation, including removal of tonsils and adenoids. If so, give particulars and dates.

....
....
....

6. Does the pupil suffer from any constitutional peculiarity affecting the general health sight, hearing, etc.

....
....

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* 'Hand book for Medical Officers of Schools on School Health and Communicable Diseases' issued by the Medical Officers of Schools Association, Great Britain, U. K., 1954 edn. pp. 16–18.

7. Are the teeth in good order..

8. Is the pupil fit in all respects for ordinary school life..

9. Is there any other information that you think the Medical Officer should have.........

Date ....   Signed..
Parent/Guardian.

In all schools the Medical Officer should make a thorough physical examination of each pupil on entry. Vaccinations, inoculations and immunizations should be recorded with dates. Any abnormalities or defects should be reported to the parent or guardian with advice as to any treatment necessary and its urgency. The necessity for and timing of any subsequent routine examinations will depend on the findings in individual cases and on the closeness of normal medical supervision.

A certificate should be required on the entry of each pupil giving his or her medical history. An accompanying letter from the family doctor is often helpful. This certificate should be signed by the parent or guardian and sent to the school before the pupil's final acceptance. The above proforma will serve as a guide to what is required.

APPENDIX B X (iii)

Form A

SOUTH CAROLINA SCHOOL HEALTH RECORD

Name of Pupil :	Date of Birth	Year	Month	Day
School—(In Pencil)		Race		Sex
Name of Parent/Guardian :				
Residence Address—(In Pencil)		Phone—(In Pencil)		
Business Address—(In Pencil)		Phone—(In Pencil)		
Family Physician—(In Pencil)		Dentist—(In Pencil)		

DISEASE AND ILLNESS HISTORY (Give year if possible; otherwise yes)

Measles		Infantile Paralysis		Running Ear	
German Measles		Sore Throat (Frequent).		Worms (Type)	
Mumps		Rheumatic Fever		Rupture	
Chicken pox		Heart Disease		Typhoid Fever	
Whooping Cough		Headache (Frequent).		Convulsions	
Diphtheria		Asthma and Hay Fever.			

Other Diseases, Injuries, or Operations :

PREVENTIVE PROCEDURES (Inoculations and Special Tests)

Inoculations : (Dates)		Special Tests (Give year and results)										
Diphtheria Basic series	Booster	Hemoglobin		Feces			Other					
hooping Cough Basic series		Year	Result	Year	Result	Type	Year	Result	Year	Result	Year	Result
Tetanus Toxoid Basic series			——% ——gms									
Smallpox First Take			——% ——gms									
			——% ——gms									
			——% ——gms									
Poliomyelitis												
Typhoid Fever												

HEALTH APPRAISAL—BY NURSE, TEACHER OR OTHER

Grade	Pre-School	1	2	3	4	5	6	7	8	9	10	11	12
Date (Year)													
Height Fall In Inches Spring													
Weight Fall In lbs. Spring													
Vision R Without Glasses L													
Vision R With Glasses L													
Type of Test													
Person Giving Test													
Hearing R L													
Type of Test													
Person Giving Test													

Recommended By : The South Carolina State Department of Education. The South Carolina State Board of Health.

PUPIL PARENT SCHOOL

TEACHERS' OBSERVATIONS

Code : X—Needs attention; C—Correction of defect.

	Grade													
	Date													
	General Lassitude													
GENERAL	Abnormal Gait													
	Pallor													
	Very Thin													
	Very Fat													
	Tires Easily													
	Frequent Nose Bleed													
	Skin Eruptions													
	Poor Posture													
	Poor Food Habits													
	Prone to Accident													
	Pediculosis													
EYES	Styles or Crusted Lids													
	Inflamed													
	Crossed													
	Frequent Headaches													
	Squinting													
	Reads Too Close—Too Far													
EARS	Discharge													
	Frequent Earache													
	Inattention													
	Fails to Hear													
NOSE THROAT	Nasal Discharge													
	Frequent Sore Throat													
	Colds (Frequent)													

TEACHERS' OBSERVATIONS—*Contd.*

MOUTH	Cracks at Corner													
	Persistent Mouth Breathing													
	Inflamed Tongue													
	Inflamed Gums													
	Decayed Teeth													
	Irregular Teeth													
BEHAVIOUR	Marked aggressiveness.													
	Shyness													
	Speech Defect													
	Tics or Mannerisms													
	Little Group Participation													
	Nail Biting													
	Undue Restlessness													
	Excessive Use of Toilet													

FOLLOW-UP NOTES

	By Whom	Date

Form B

PUPIL **PARENT** **SCHOOL**

HEALTH APPRAISAL BY PHYSICIAN

Code: √—Satisfactory; X—Needs observation;
XX— Needs immediate attention; C—Correction of defect.

Grade and Date										
	Code	Correction	Code	Correction	Code	Correction	Code	Correction	Code	Correction
Nutrition . .										
Posture . .										
Gait										

HEALTH APPRAISAL BY PHYSICIAN—*Contd.*

Grade and Date										
	Code	Correction	Code	Correction	Code	Correction	Code	Correction	Code	Correction
Musculature .										
Skin . . .										
Scalp . .										
Eyes . . .										
Ears . . .										
Nose . . .										
Mouth, Gums .										
Speech . .										
Teeth . .										
Throat . .										
Lymph Nodes .										
Thyroid . .										
Heart . .										
Lungs . .										
Abdomen . .										
Bones & Joints .										
Feet . . .										
Hemoglobin .										
Urinalysis . .										
Inoculations Given: (Date)										
Should Physical Activity be Restricted ?										
Parent Present .										
Examining Physician.										

PHYSICIAN'S REMARKS AND RECOMMENDATIONS (give dates)

S. C. STATE DEPARTMENT OF EDUCATION.
S. C. STATE BOARD OF HEALTH.

Form C

PUPIL PARENT SCHOOL

FOLLOW-UP NOTES OF HEALTH APPRAISAL BY PHYSICIAN : RESULTS AND DATES

DENTAL INSPECTION BY DENTIST

Code : Enter √ in Grade Columns when indicated ; enter C beside √ in Column when condition has been corrected.

Grade	Pre-School	1	2	3	4	5	6	7	8	9	10	11	12
Date . . .													
Teeth Apparently Normal.													
Defects in Temp. Teeth.													
Defects in Perm. Teeth.													
Diseased Gums . .													
Stains, Tartar . .													
Needs Orthodontic Care.													
Number Lost Perm. Teeth.													
Examining Dentist .													
Teeth Cleaned (Give Date).													
Date of Treatment .		1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Sodium Fluoride Therapy.													

RECOMMENDATIONS OF DENTIST (Give dates)

FOLLOW-UP NOTES (Give dates)

S.C. STATE DEPARTMENT OF EDUCATION.
S.C. STATE BOARD OF HEALTH.

APPENDIX B-X (iv)

Medical Inspection Report—Bihar

L.P.
H.P.
M.E.
MADARSSA
H.E.
TOWN
VILLAGE

Name of School Authority—

(A) Name of School— District—

Name of Pupil— Male/Female. Age ( )
(1)— Class—

Date of Birth (2)— Name and address of parent/guardian—

Occupation of parent/guardian—

(B)

Date of 1st Health Inspection (to be filled by School Teacher)	1st	2nd	3rd	4th	5th
Personal history in respect of—					
Measles					
Whooping Cough					
Diphtheria					
Chicken-pox					
Smallpox					
Malaria					
Cholera					
Typhoid					
Dysentery					
Date of Primary vaccination . . .					
Last date of vaccination . . .					
Date of A. C. Inoculation . . .					
(C) HEIGHT					
Weight					
Vision R.E.					
L.E.					
Nutritional State					
Cleanliness of body, hair and scalp . .					

--Contd.

Date of 1st Health Inspection (to be filled by School Teacher)	1st	2nd	3rd	4th	5th
Chest measurement					
Exp.					
Insp.					
Ext. Eye disease					
Speech					
Teeth and Gums					
Ear disease					
Hearing					
Skin disease					
Nose and Throat					
Tonsils					
Adenoids					
Glands (Cervical & general) . . .					
Heart					
Lungs					
Digestive system					
Liver					
Spleen					
Rickets					
Deformity (Posture)					
Other diseases or defects . . .					
(D) Doctor's initials					
Notification Card					
Date of issue					
Date of return					
Teacher's observations . . .					
Date of special inspection . .					

Date————————————

Notes :

APPENDIX B-X (v)

School Health Record—Bombay

Name.......................... Sex............ Primary Health Unit..........
Address.......................................School ....
Date of Birth..Place........................
Family History :—
Father's Name................ Occupation............. Health Status............
Mother's Name................................Health Status......................
Brothers.......................Sisters.............Others in Household............
Special Health Problems in Family...
....

SUMMARY OF INFANT AND PRE-SCHOOL RECORD

Special Problems..
....
....

Immunisations & other Special Tests				Diseases	Date	Complications (Disease History)
	Date	Result				
Smallpox . .				Chicken-pox .		
Mantoux Test . .				Diphtheria . .		
B.C.G. . . .				Measles . .		
Diphtheria . .				Mumps . .		
Whooping Cough .				Whooping Cough		
Tetanus . . .				Smallpox . .		
TOTAL .						

PHYSICAL EXAMINATION

Examiner ....

Date				
Class				
Age				
Parents present				
Regularity of attendance				
Mental ability (whether in opinion of teacher child is bright, average, backward).				
Height				
Weight				
Head and neck				
Skin and scalp				
Eyes—External Diseases				

PHYSICAL EXAMINATION—*Contd.*

Glasses worn (Vision)	R	L	R	L	R	L	R	L
Ears Disease								
Hearing								
Nose								
Throat								
Glands								
Mouth								
Teeth cleanliness								
Caries								
Pyorrhea								
Tonsils								
Adenoids								
Speech								
Heart								
Lungs								
Chest measurements								
Abdomen								
Hernia								
Hydroxide								
Extremities								
Feet								
Posture								
Nutrition								

Special Problems and Recommendations :—

सत्यमेव जयते

APPENDIX B-X (vi)—*Contd.*

Family (important illness or defect)

F. ....

M. ....

B. ....

S. ....

Other. ....

Home conditions (Accommodation)

Address No.	1	2	3	4
No. of Rooms				
No. of Occupants				
(a) Total				
(b) Per Room				

Parents	Occupation	Income P.M.
Father	....	....
Mother	....	....

Illnesses—Operations—Injuries

Notes on Severity

Years

Whooping Cough

Measles

Diphtheria

Mumps

Chicken-pox

Typhoid

S. Pox

Others

Prophylaxis

Years

Smallpox

Typhoid

Whooping Cough

Diphtheria

Tetanus

B.C.G.

Others

Bladder control :—

Bowel control :—

(V—No Defect; O—Defect requiring observation ; T—Requiring Treatment; R—Reference to Specialist.

Defect

Year

Code/Date

No./Class and Section

Type of Examination

(P—Periodic)

(S—Special)

Parent present {(Y—Yes / (N—No.

1. Cleanliness {Clothing / Footwear

2. Infestation {Head / Body

3. Teeth

4. Skin

5. Eyes (a) Vision

(b) Squint

(c) Other

6. Ears (a) Hearing

(b) Otitis media

7. Nose and throat

8. Speech

9. Glands (a) Cervical

(b) Other

10. Heart-circulation

11. Lungs

12. Digestive system

13. Liver

14. Spleen

15. Endocrine

16. Genitals

17. Development (a) Hernia

(b) Other

18. Orthopaedic

(a) Posture

(b) Flat Foot

(c) Others

19. Psychological

(a) Dull & Backward

(b) Neurotic

20. Rickets

21. Others

General Condition (A—Good; B—Fair; C—Poor)

Initials of H. O.

Form No. 1.

APPENDIX B-X (VII)

HEALTH RECORD

Dept. of Public Instruction, Kerala State

Taluk..................

Name .... Sex............ Date of Birth ...... Age .. .

School .... Class............ Town or Village ....

Family History including Number of Members .... Previous illness ....

Private/Government Assisted/ Government .... Name of Parent & income } ....

Occupation .... Address ....

		1st	2nd	3rd	4th	5th
Date of Examination						
Height, standing in inches						
Height, sitting in inches						
Weight (lb. or oz.)						
Normal weight for height						
Constitutional type	Slender					
	Medium					
	Stocky					
General Nutrition	Excellent					
	Good					
	Requiring supervision					
	Seriously impaired					
Vaccination Scar						
Eyes						
Xerophthalmia						
Bitot's spots						
Keratomalacia						
Vision	Right					
	Left					
Mouth and Tongue	Stomatitis-angular or otherwise					
	Fissured lips					
	General condition of tongue.					

—Contd.

Date of Examination		1st	2nd	3rd	4th	5th
Teeth & Gums						
Caries						
Malocclusion						
Fluorosis						
Ears						
Hearing	Right					
	Left					
Lymph Glands						
Available information regarding food habits						
Nose						
Tonsils						
Heart	Organic					
	Functional					
Blood Pressure						
Lungs	Right					
	Left					
Hernia						
Orthopaedic defects						
Nervous System						
Skin	General condition, Glossy, Dry, & C.					
	Phrynoderma					
	Other diseases					
Scalp						
Rickets						
Hookworm						
Malaria	Spleen					
	Blood					
Abnormal behaviour						
Mental deficiency						

—Concld.

Date of Examination	1st	2nd	3rd	4th	5th
Speech defects					
Scabies					
Pediculosis					
Ringworm					
Other defects					

O—Normal ; OO—Defects corrected ; X—Defects slight ; XX—Defects moderate ; XXX—Defects severe.

RELIEF RECORD

Standard	Defects treatment	Notification and date	How dealt with and date	Result	Remarks

Appendix B-X (viii)

CONFIDENTIAL

Boy/Girl

Form 1

Public Health Department, Punjab

MAIN SCHOOL MEDICAL RECORD

Name.................................... Father's Name..........................
(Block Caps. Surname First)
Date of Birth.......................... Place in Family..........................

2. Address .... 3. School ....

1. .... Admitted............Left ....
2. .... 1. ....
3. .... 2. ....
4. .... 3. ....
5. .... 4. ....
6. .... 5. ....
6. ....

4. Intelligence and Educational Progress ....

Date ....

I.Q. ....

Attainment ....

(Attainment : Approx. years retarded or in advance of average) . .

5. Summary of Teacher's Notes (School attendance, etc.).

....

....

....

6. Home Conditions :

Address No.					
Date					
Information from					
Type of dwelling					
No. of rooms					
No. of occupants					
Sleeping arrangements Room					
Sleeping arrangements Bed.					
Cleanliness					
P.C.					

7. Family (important illness or defects in other members)

F. ....

M. ....

B. and S. ....

Others ....

8. Father's Occupation........Year(s)....

Change 1. ....

Change 2. ....

Change 3. ....

Mother's Occupation................

Approx. hours per day................

9. Illness, operations or injuries

Year(s) Notes of severity

Whooping cough ....

Measles ....

Diphtheria ....

Sc. fever ....

Mumps ....

Chicken-pox ....

Enteric ....

Dysentery ....

10. Prophylaxis..........Year(s) ....

Smallpox...........................

Diphtheria ....

Whooping cough ....

B.C.G. ....

Others ....

11. Bladder control ....

12. Bowel control ....

SUMMARY OF DEFECTS OR DISEASES FOR STATISTICAL PURPOSES

(V—No defect; O—Defect Requiring observation; T—Requiring treatment; R—Reference to Specialist)

13. Defect............
Code No. Date

Type of inspection (P—Periodic, S—Special) Parent present (Y—Yes, N—No) . .								
1. Cleanliness								
2. Infestation . .	Head Body							
3. Teeth								
4. Skin								
5. Eyes—								
(a) Vision								
(b) Squint								
(c) Trachoma								
(d) Others								
6. Ears—								
(a) Hearing	R							
(b) Otitis media	L							
(c) Others								
7. Nose or Throat								
8. Speech								
9. Cervical glands								
10. Heart and circulation								
11. Lungs								
12. Development—								
(a) Hernia								
(b) Others								
13. Orthopaedic—								
(a) Posture								
(b) Flat Foot								
(c) Others								
14. Nervous system—								
(a) Epilepsy								
(b) Others								
15. Psychological—								
(a) Development								
(b) Stability								
16. Nutritional defects such as vitamin deficiencies								
17. Anaemia								
18.								

13a. General condition (A—Good; B—Fair; C—Poor.)

14. Initials of Medical Officer.

MEDICAL EXAMINATIONS AND NOTES

15. Vision (acuity tests)

Date . . . .

Without glasses . . . . . { R / L

With glasses . . . . . { R / L

Near Vision { without glasses . / with glasses .

16. Colour Vision

17. Hearing (specify date, tests and result)

18. Special tests (specify date, test and result).

19.

Date	Defect, Code No.	Medical Examination and Notes (Please rule line right across after every entry)

20. Employment (specify any type of employment considered unsuitable).

APPENDIX B-X (IX)

Health Directorate Government of West Bengal

SCHOOL HYGIENE DIVISION

SCHEDULE OF MEDICAL INSPECTION (FOR INDIVIDUAL CHILD)

School ——————————

Name ——————————

Address ——————————

Birth-place —————————— Date of Birth——————————

II—HISTORY—

A—Before first examination.
B—After first examination.
C—After second examination.

(a) Personal past illness of child.

Measles	Whooping cough	Diphtheria	Smallpox	Malaria	Dysentery
A B C	A B C	A B C	A B C	A B C	A B C

Glands in neck	Chronic cough and cold	Pleurisy and Pneumonia	Rheumatic fever, Beri-Beri and Epidemic dropsy	Chronic Diarrhoea
A B C	A B C	A B C	A B C	A B C

(b) **Family History** . . . State any disease from which parents or other members of family are suffering or died of.

III—GENERAL CONDITIONS—

Heads of information	Years		
	(I) 19	(II) 19	(III) 19
1. Class			
2. Age			
3. Regularity of Attendance			
4. Height			
5. Weight			
6. Chest {Full inspiration			
{Full expiration			
7. Clothing			
8. Foot-gear			
9. Whether, in the teacher's opinion, Bright, Dull or Backward			
10. Posture or any other abnormality detected			

NOTE.—This side of this form is to be filled in by the Class Teachers and kept ready for the Health Officer or the School Medical Officer who is to examine children and enter *findings on the reverse side. This form is to be used for these occasions.*

IV—SPECIAL CONDITIONS—

Defects or diseases	Years		
	(I) 19	(II) 19	(III) 19
1. Nutrition—Good, Fair, Poor, Fat			
2. Mouth-Tongue			
3. Teeth—Caries or unclean, spongy gum, Pyorrhea			
4. Throat—Enlarged Tonsils, Pharyngitis, Adenoids, Diphtheria			
5. Enlarged Submaxillary and Cervical glands and others			
6. Pock and Vaccination marks			
7. Protection (by vaccine) from Cholera			
8. Protection (by vaccine) from Typhoid			
9. Digestive system—Diarrhoea, Dysentery etc.			
10. Eyes—	R L	R L	R L
Conjunctivitis			
Blepharitis, Squint			
State if glasses worn			
Vision			
11. Ear—			
Defective hearing,			
Otorrhea			
12. Nose—			
Rhinitis			
Deviated septum			
Polypus and others			
13. Speech—			
Stammering and other defects			
14. Heart—			
Functional and Organic			
15. Lungs—			
Bronchitis			
Pleurisy			
Tuberculosis suspected & definite			
16. Epidemic dropsy—			
Beri-Beri			
17. Skin and Scalp—			
Uncleanliness, Ringworm, Scabies, Leprosy, etc.			
18. Bones and Joints—			
Rickets			
Osteomyelitis			
Deformity			

Defects or diseases	Years		
	(I) 19	(II) 19	(III) 19
19. Nervous system—			
Paralysis			
Epilepsy, etc.			
Mental condition			
20. Liver Enlargement			
21. Spleen Enlargement (measurement) . .			
22. Fitness for exercise— Normal/Moderate/None			
23. Physique			

V. SPECIAL REMARKS—

Signature of Head Teacher

Signature of Health Officer.

Signature of School Medical Officer.

NOTE.—A copy of this form shall be allotted to every child on admission, and kept in the personal custody of the Head Teacher. It shall be produced whenever required by the Health Officer or School Medical Officer. Soon after all the inspections are completed or when no longer required (as in the case of transfer or leaving school) the schedule shall be returned to the Health Officer or School Medical Officer.

Director of Health Services, West Bengal, Form No. 3-S.H.

APPENDIX C-I

School Meal Programmes in our Country

The facilities now made available for providing school meal to children under the school meal programme in various States are summarised below:—

Andhra Pradesh

A scheme was enforced in the State which related to the supply of mid-day meals to 20 Koya pupils in each of three schools at Bundapalli, Kodapalli and Pidathmamidi villages upto May 1960. The Education Department with the help of Nutrition Officer and the School Medical Officer, runs a free mid-day scheme for about 12,000 children from 5 to 14 years.

Assam

The State Government have instituted a mid-day meal scheme in Kamlabani Development only.

Bihar

With effect from January 1959, 17 Pilot Proejcts have been started in 17 Community Development Blocks of the State, for introduction of free and compulsory primary education. The mid-day meal programme is proposed to be introduced shortly in the primary schools in all these pilot projects. It is proposed, for the present, to provide mid-day meals to only 50 per cent of the children, reading in the primary schools of the pilot projects. Subsidy in this regard is proposed to be given at the rate of 6 nP. per child per working day. It is expected that an equal amount will be forthcoming in this regard from the local community. "UNICEF milk feeding" programme has been extended to 82 Community Development Blocks, besides the above 17 Community Development Blocks.

Gujerat

In Dangs district of the State, there is a scheme of providing mid-day meal to the children of primary schools. A meal consisting of Nagli (Ragi) Jaggery, groundnut and skim milk powder is served. This diet gives an intake of about 625 calories and nearly 20·5 gms. of proteins daily. The average cost of this lunch is 12 nP. per pupil per day. It is proposed to replace Jaggery and groundnuts in the diet by MPF 1½ ounces. 4351 children in 150 schools are taking advantage of this scheme.

Jammu & Kashmir

There is a scheme to supply free milk to students who are physically and financially weak. The schools do not contribute to the scheme.

Kerala

The Scheme of "Noon feeding" in the lower primary schools has been in force in the formal Cochin area and in the areas of compulsory primary education in the Travancore area.

A modified scheme has since been extended to two districts in the State, *viz.*, Alleppey and Kozhikode. Mid-day meals are now provided only for necessitutous children (the income of whose parents does not exceed Rs. 900 per annum). The cost of meal for each pupil is 6 nP. Eighty per cent of the cost of meal involved is met by the State Government and the balance is met from local contributions either in kind or cost by Feeding Committees.

Maharashtra

At present the UNICEF is supplying skim milk powder, vitamin tablets, fish liver oil to the primary health units in the State. The skim milk distribution programme for the whole State is formulated and co-ordinated by the Public Health Department. Under the school feeding programme the consumption of milk was about 12,68,000 lbs. with 39,765 beneficiaries. Though the milk scheme is working very well in the State, it has touched only the fringe of the problem, as there is not enough milk supply for all the school children. As regards the primary schools run by the Bombay Corporation about 40,000 mal-nourished children get a glass of toned milk and a piece of "chikky' (about an ounce). Chikky is made of groundnut, gram and jaggery. This scheme has been in force during the last four or five years.

Mysore

The scheme was introduced by the State Government during the year 1957-58. Preference is given to the children attending the school from distant places. The rate of contribution of the State Government is 5 nP. per pupil per day for 24 days in a month. An equal amount is to be met by the management or the school authorities.

Orissa

A scheme for the supply of mid-day meals to primary school children mostly in four selected N. E. S. Blocks of the State in which free and compulsory primary education has been introduced as a pilot project has been made. The UNICEF milk is given to the students in the Block areas in the State. Some heads of institutions also who have found it possible to give refreshment to the students of their institution in the shape of mid-day tiffin, mid-day fruit, meals, etc. have been permitted by the State Government to do so.

Punjab

No scheme is in operation in the State. However, 193 students were given free mid-day meal in Government Nursery School, Jullunder. The entire expenditure was borne by the State Governments. Moreover skim milk supply by the UNICEF and other voluntary organisations such as Red Cross Society is distributed to school children.

Rajasthan

No such scheme is being implemented at present.

Uttar Pradesh

The State Government has no such scheme. A scheme is, however, working since 1953 on a voluntary basis in about 400 institutions, covering 1,20,000 students including higher secondary schools of urban areas of the State. The monthly fee of 50 nP is charged from the students in urban higher secondary schools. They are given boiled roasted or sprouting grams, groundnut, puffed rice, boiled rice, boiled potatoes or seasonal fruits.

West Bengal

A compulsory tiffin scheme is now in operation in three Government Secondary Schools in Calcutta on contributory basis ; every student paying Rs. 2 only per month for 12 months. The tiffin generally consists of some cereal food (usually bread and butter) and some fruit.

Andaman Nicobar Islands

Mid-day meals are being provided in the island to each school-going child on each school day. Number of schools covered and the number of pupils who have benefited is 20 and 4178 respectively.

Delhi

No scheme is in operation in the territory. Some skimmed milk powder is being distributed to students below the age of 14 years.

Himachal Pradesh

The Government has no scheme at present.

Laccadive, Minicoy & Amindive Islands

Mid-day meals are being supplied to all the 11 secondary schools (total strength of students 2,635).

Manipur

For the present the scheme has been introduced in 6 schools and is likely to be extended to other schools.

Tripura

At present no such scheme is in force in the territory.

Pondicherry

Mid-day meals are supplied to poor children studying in Government Primary Schools and the entire cost is borne by the Government. During 1960-61, the scheme of free supply of mid-day meals was in operation in 145 out of 232 Government Primary Schools. Out of 26,000 children on roll 22,111 children were supplied mid-day meals which works out to 85 per cent. An expenditure of Rs. 3,70,000 was incurred by Government during 1960-61 on this scheme.

APPENDIX C-I(i)

Details of intake of foodstuffs as revealed by surveys in 1935-1948 *and* 1955-1958 *carried out in India.*

Foodstuffs	Recommended allowances (oz.)	Mean intake 1935-48 surveys (oz.)	Mean intake 1955-58 surveys (oz.)
Cereals	14	16.62	16.59
Pulses	3	2.26	2.39
Leafy vegetables	4	0.85	0.71
Other vegetables	6	4.10	3.20

Foodstuffs	Recommended allowances (oz.)	Mean intake 1935-48 surveys (oz.)	Mean intake 1955-58 surveys (oz.)
Ghee and Oils	2	0.92	0.52
Milk and its products . . .	10	3.31	2.81
Meat, fish and eggs	4	0.94	0.47
Fruits (and nuts)	3	0.58	0.21
Sugar and jaggery	2	0.67	0.71
Total cereal foods . . .	14	16.62	16.59
Total non-cereal foods . . .	34	13.63	11.02

APPENDIX C-II

School Meal Programme in Foreign Countries

France

The credit for starting the school meals goes to a Frenchman, Victor Hugo, in the year 1865. He financed the provision of hot meals for the children in a school in Guernsey. From such a beginning, the school lunch programme in France had an organic growth with characteristics of its own. Both free meals and meals for payment were provided with no difference between such meals. The children themselves were not-conscious of the social distinction between "payment" and "non-payment." In the year 1868, it was enacted that all communes (the smallest local administrative units) in France should establish school fund committees to provide meals for the children who were unable to pay. In 1877, a proposal was laid before the Paris Municipality that it should supply food to all school children coming from poor families. By the year 1880, school feeding centres were attached to 500 schools throughout France. By 1929, nearly 5,700 and by 1931, nearly 7,650 schools were attached to feeding centres. The outbreak of War in 1939 increased the number of school feeding centres especially in the rural areas, and nearly 9,000 schools were attached to such centres. In the year 1936, the Government enacted that any new school that might be opened should be attached to a feeding centre. The school lunches served were simple and attractive. They provided 1,000 to 1,200 calories. The lunch included a large bowl of vegetable soup, fish, meat or eggs or a combination of these to provide 18 to 20 grams of animal protein, vegetables generally raw in the form of salad ; a simple dessert often fruit ; cheese and milk.

Italy

Padua in Italy was one of the first cities in which some efforts were made to plan the School meals scientifically. The Director of Medical Inspection laid down the principle that the meals should contain 75 per cent of what were then held to be a child's daily requirements of protein and fat.

Netherlands

The first country to give legal recognition to school food service was the Netherlands. "The Netherlands Education Act of 1900" authorised the municipalities to provide food for all children at school who were unable to attend regularly because of lack of food.

U.K.

At the time of the Boer War (1899-1902) England discovered that three out of five men who presented themselves for military service, were physically unfit. An investigation showed that such poor physical conditions were due to malnutrition during childhood. The final outcome of this discovery was the introduction of the school lunch programme on a national scale through the passing of the "Provision of Meals Act of 1906" which gave the local school authorities the power to use school funds to establish lunches for under-nourished children. In 1938, four per cent of the schools in the United Kingdom were providing School lunches. With the progress of time the school feeding programme became more and more popular and by 1942, more than half of the school children were provided with school lunches. To-day most of the children in U. K. get a glass of milk free in the school, and a subsidised lunch consisting of boiled vegetables, salad, steak and pudding, costing a nominal sum. School feeding in U. K. is being operated through the Country Councils, and every school has a kitchen and canteen attached to it where hot lunches are served to the children.

United States of America

In 1953, the United States Department of Agriculture reported that 34 per cent of the elementary and secondary schools in several states participated in the school lunch programme. The school lunch programme in the U.S.A is organised with the help of Home Economists, and operated according to the rules and conditions passed in the different States of America A high standard of food and nutrition is maintained in the meals served to children. According to the national school lunch programme in the country the lunches served must meet the minimum nutritional requirements prescribed by the Secretary of Agriculture. At present three types of lunches are provided. They are as follows:—

Constituent	Type A	Type B	Type C
1. Milk (whole)	½ pint	½ pint	½ pint
2. Fresh or processed meat . .	2 ozs.	1 oz.	..
3. Beans cooked	¼ cup	¼cup	..
4. Egg	One	Half	..
5. Vegetables & fruits (raw, cooked or canned).	6 ozs.	4 ozs.	..
6. Bread	One portion	One portion	..
7. Butter or margarine (fortified). .	2 tea spoons	2 tea spoons	..

Type 'A' is a complete lunch based on the weekly quantities needed by a child of 10 to 12 years of age according to the schedule prepared by the Federal Bureau of Human Nutrition and Home Economics. It provides about one-third of the day's allowance of cereals, potatoes, dry beans, peas, nuts, sugar and fats other than butter, and one half of the day's allowance of "protective foods". Type 'B' is a partially complete lunch as compared to type 'A' and includes one half as much of protein rich food as type 'A', two-thirds as much fruit and vegetable rich in vitamins and minerals, and one half as much of fat rich in vitamin A. It was enacted by the Secretary of Agriculture that the milk given must meet the minimum requirements of State and Local Laws.

Norway

The 'Oslo breakfast' introduced into schools in Norway in the late 1920, shows how a combination of objectives can be achieved. The meal consists of milk with sandwiches made of rye biscuits or bread, vitaminised margarine, whey cheese, cod-liver paste and raw carrot, an apple or an orange according to the season and availability.

Japan

A comprehensive school meal programme covering the entire school going population is currently in operation in Japan. Over 60 per cent of the primary school children are now participating in this. Of these, about 90 per cent receive a mid-day meal including milk while others are provided with a glass of milk and snack.

Scotland

The Ministry of Food with the help of nutritional advisers worked out the requirements of a really satisfactory meal for growing children in the year 1941. The recommended diet provided 20 to 25 grams of first class protein, 30 grams of fat and 1,000 calories for children above 11 years; the calories were reduced to 750 and under eight years to 650, but no reduction in protein was advised. The sources recommended for first class proteins were milk, small quantities of dried egg, cheese bacon, canned meats, fish, occasionally fresh fish. Liquid milk was allowed together with one ounce of dried separated milk.

Other Countries

In other countries, the principal type of school feeding is a glass of milk with or without some supplement. In the Philippines, in addition to a school meal distribution programme, about 70 per cent of the schools have established lunch counters where children may obtain at low cost recess snacks or a supplement of the packed lunch which they bring from home. In Sweden and Denmark the meals are served free to the children. Free milk is also supplied in New Zealand.

APPENDIX C-III

Statement showing the number of schools and school children provided with Mid-day Meals in 1960-61

Sr. No.	State	No. of Schools	No. of children (in 000's)
1	Andhra Pradesh	604	20.9
2	Assam	273	15.2
3	Bihar	..	..
4	Gujarat	109	0.4
5	Jammu & Kashmir	..	..
6	Kerala	3776	743.1

Sr. No.	State	No. of Schools	No. of children (in 000's)
7	Maharashtra	..	..
8	Madhya Pradesh	..	..
9	Madras	25985	945·0
10	Mysore	1900	111.0
11	Orissa	5965	23·5
12	Punjab	52	0.8
13	Rajasthan	..	..
14	Uttar Pradesh	814	339·5
15	West Bengal	366	120·0
			2319·4
UNION TERRITORIES			
1	Andaman & Nicobar Islands	24	3·4
2	Delhi (Corporation)	250	100.00
3	Himachal Pradesh	..	..
4	Manipur	90	7·0
5	Tripura	39	3·4
6	Pondicherry	134	20.7
7	Laccadive Minicoy and Amindive Islands.	16	4·0
		40,294	138·5
		GRAND TOTAL	2,457·9 or 24.6 lakhs.

APPENDIX C-IV

Sample School Meal Menus

A few sample menus for each of the four regions in the country are given in the attached list. The cost of each menu varies between 9 nP. and 12 nP. [*i. e.* cereals and millets—2 to 3 nP.; Pulses (including protein rich supplements) 2 nP.; Leafy vegetables and non-leafy vegetables 2 nP. Oil 2 nP ; and Condiments & Salt 1 nP.]. The nutritive value of these menus in terms of calories varies from 450 to 600, of protein from 15 to 23 gms., in addition to adequate quantities of Calcium, Iron, Vitamins A, B1 & B2 and C, Thiamine and Riboflavin.

A. MENUS FOR SOUTH

Menu I.—'PONGAL'.

Ingredients	*Quantity of raw food-stuffs*
Rice	90 gms.
Green gram	60 gms.
Salt	To taste
Water	

Menu II.—WHEAT-PULSE 'LADOO' AND BUTTERMILK.

(a) *Wheat-pulse 'ladoo'*.

Ingredients	*Quantity of raw food-stuffs*
Roasted atta	45 gms.
Roasted bengal gram, powdered	45 gms.
Jaggery, powdered	60 gms.
Water	

(*b*) *Buttermilk*

Ingredients	*Quantity of raw food-stuffs*
Curd	60 gms.
Water	
Salt	to taste

Menu III.—'UPPUMA'.

Ingredients	*Quantity of raw food-stuffs*
Suji	90 gms.
Oil	2 teaspoons full
Onions	30 gms.
Black gram 'dal'	a little
Bengal gram 'dal'	a little
Dried chillies	a few
Curry leaves	a little
Mustard	a few leaves
Salt	to taste
Water	

Menu IV.— 'SUNDAL'.

Ingredients	*Quantity of raw ood-stuffs*
Bengal gram	120 gms.
Green chillies	a few
Groundnut oil	half a teaspoon
Shreded coconut	10 gms.
Mustard	a little
Salt	to taste
Water	
Curry leaves	a few leaves

Menu V.—COOKED TAPIOCA AND FISH CURRY.

(*a*) *Tapioca.*

Ingredients	*Quantity of raw food-stuffs*
Tapioca	240 gms .
Salt	to taste
Water	

(*b*) *Fish curry.*

Ingredients	*Quantity of raw food-stuffs*
Fish	90 gms.
Coconut	10 gms.
Dried chillies	a few
Coriander seeds	a little
Cumin	a little
Salt	a pinch
Turmeric	a pinch
Taramind	a little
Water	
Garlic	a few pods

Menu VI.—COOKED RAGI AND 'SAMBAR'.

(*a*) *Ragi*

Ingredients	*Quantity of raw food-stuffs*
Ragi flour	120 gms.
Water	

(*b*) *'Sambar'.*

Ingredients	*Quantity of raw food-stuffs*
Red gram	30 gms.
Brinjal	60 gms.
Groundnut oil	a little
Salt	to taste
Tamarind extract	to taste
'Sambar masala'	a teaspoonful
Mustard	a little
Curry leaves	a few
Water	

Menu VII.

Ingredients	*Quantity of raw food-stuffs*
Plain rice (home-pounded or par-boiled)	70 gms.
'Sambar' containing Red gram 'dal' (harhar)	28 gms red gram 'dal'
Ladies finger	28 gms ladies finger
Amaranth (chowlai) vegetable and green coriander chutney.	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seed, cumin, etc.) and Salt.	to taste

Menu VIII.

Ingredients	*Quantity of raw food-stuffs*
Wheat suji	70 gms. wheat suji
Tomato 'Uppuma'	28 gms. tomato
Red Gram 'Dal' chutney	28 gms red gram 'dal'
Fenugreek leaves Vegetable (Methi)	28 gms. fenugreek leaves
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt.	to taste

Menu IX.

Ingredients	*Quantity of raw food-stuffs*
Pongal rice	70 gms rice
Rice (home pounded or par-boiled) and green gram (moong dal).	28 gms. green gram 'dal'
Agathi leafy vegetable	28 gms. leaves
Brinjal curry	28 gms. brinjal
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt.	to taste

Menu X.

Ingredients	*Quantity of raw food stuffs*
'Idli'	56 gms. rice 21 gms. black gram 'dal'
'Sambar' (harhar dal,	21 gms. 'dal'
onion & raddish leaves)	28 gms. raddish leaves and onions.
Cucumber Pachadi	28 gms. cucumber
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt.	to taste

Menu XI.

Ingredients	*Quantity of raw food-stuffs*
Plain rice (Hand pounded or par-boiled)	70 gms. rice
Sprouted moong (green gram) curry	21 gms. 'dal'
Cabbage & Potato	28 gms. cabbage
Koottu	28 gms. potato 7 gms. red gram.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XII.

Ingredients	*Quantity of raw food-stuffs*
Ragi balls	70 gms. ragi flour
'Dal' Drumstick leaves	28 gms. red gram 'dal'

and onion 'Sambar'	28 gms. drumstick leaves and onion
Potato & Beans	28 gms.
Vegetable	
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XIII.

(*a*) KITCHADI

Ingredients	*Quantity of raw food-stuffs*
Rice (par-boiled)	56 gms.
Greengram 'dal'	24 gms.
(Jeera) Cumin seeds and pepper	half a teaspoon
Salt	to taste
Oil	half a teaspoon

(*b*) GREENS (AMARANTH) PUGATH

Ingredients	*Quantity of raw food-stuffs*
Amaranth	56 gms.
Chillies	1
Salt	to taste
Mustard	1/8 teaspoon
Oil	half a teaspoon

(*c*) GROUNDNUTS ROASTED

Ingredients	*Quantity of raw food-stuffs*
Groundnuts	28 gms.

Menu XIV.—KITCHADI WITH GREENS AND MULTI-PURPOSE FOOD

Ingredients	*Quantity of raw food-stuffs*
Rice (par-boiled)	56 gms.
Greens (Amaranth)	56 gms.
Multi-purpose Food	28 gms.
Groundnuts	35 gms.
Cumin seeds	1 teaspoon
Salt	a pinch
Oil	1 teaspoon

Method of Preparing Recipes

Menu I

The cleaned rice and 'dal' are cooked in water to a semi-solid consistancy and salt added towards the end.

Menu II

(a) *Wheat-pulse 'ladoo'*.—All the ingredients are mixed and made into a dough with water and made into small balls.

(b) *Buttermilk*—The curd is churned with water and salt added and churned again.

Menu III

Mustard, chillies, curry leaves and 'dal' are fried in oil till brown. Then sliced onions are also fried in the same oil, the water added and brought to vigorous boil, the salt and suji added, strirred vigorously to avoid formation of lumps and cooked on slow fire till grains are soft and water is completely abosorbed.

Menu IV

Bengal gram is cleaned and soaked overnight and cooked in water till soft. Salt is added and cooked for a few more minutes. The excess water is drained off and the seasoning of mustard and other ingredients fried in oil added to cooked bengal gram.

Menu V

(a) *Tapioca.*—Cleaned tapioca is cut into pieces, peeled free of the skin and boiled till soft.

(b) *Fish curry.*—Fish is cleaned, cut into small pieces and boiled, shredded coconut, coriander, red chillies and cumin are roasted a little and ground with turmeric, garlic and tamarind and mixed with cooked fish. Salt is added and the curry cooked for a few minutes more till little gravy is left.

Menu VI

(a) *Ragi*—Ragi flour is added slowly to boiling water with vigorous stirring and cooked till the water is absorbed and made into balls.

(b) *Sambar.*—Cleaned red gram 'dal' is boiled in water till it becomes very soft. The vegetables are added along with all other ingredients except salt, mustard and oil, and the cooking continued. After the vegetables are cooked and the raw flavour ceases, salt is added and the cooking continued for a few more minutes. Mustard is fried in oil and added to the 'Sambar' as seasoning towards the end.

Menu VII

Plain Rice.—Clean and wash the rice. Cook it in minimum quantity of water in steam in covered degchi till the water is absorbed in the rice

'*Sambar*'.—Wash and cook the red gram 'dal' in 1½ cups of water with a pinch of turmeric powder till very soft. Wash and cut ladies fingers and cook for 10 minutes in the 'dal'. Add tamarind juice, chillies powder and salt to taste and cook for 10—15 minutes. Remove from fire and season with mustard, a pinch of asafoetida and add a few green 'dhania' leaves.

Amaranth Vegetable.—Pick, wash and chop the amaranth leaves. Prepare seasoning in a degchi with a little oil, mustard seeds and green chillies, add the cut amaranth leaves and stir for a few minutes. Add a little salt and jaggery to taste and cook with a little water till tender.

Green Dhania (coriander) Chutney.—Wash the green 'dhania'. Add salt, green chillies, and ginger to taste, and grind into a fine paste. Squeeze the juice of a quarter lemon.

Menu VIII

Wheat Suji-Tomato 'Uppuma'.—Heat oil in a vessel. Fry a little mustard, bengal gram 'dal', black gram 'dal', chopped onions, green chillies, turmeric powder and curry leaves. Add ¾ cups of water with salt to taste and allow to boil. Add sliced tomato and cook for 5 minutes. Add suji when water is boiling. Stir well avoiding lumping. Mix well and cook till soft.

Red Gram 'Dal' Chutney.—Fry red gram 'dal' in a little oil. Add masalas, namely, red chillies, grated coconut, tamarind and salt to taste, grind into a fine paste, season with mustard seeds and garnish with coriander leaves.

'Methi' leaves vegetable (Fenugreek).—Pick, wash and chop the 'methi' leaves. Prepare seasoning in a degchi with a little oil, mustard seeds and a little onion, add the cut 'methi' leaves and stir for a few minutes. Add a little salt and jaggery to taste and cook with a little water till tender.

Menu IX

'Pongal' Rice—Fry green gram 'dal' in a little oil in a degchi till golden brown in colour. Add required quantity of water and add washed rice. Add salt, pepper, chopped ginger, turmeric and cook till soft. Stir occasionally to prevent charring. When the water has nearly evaporated remove from fire, add fried cashewnut.

Agathi Leafy Vegetable.—Pick, wash and chop the agathi leaves. Prepare seasoning in a degchi with a little oil, mustard seeds and green chillies, add the cut agathi leaves and stir for a few minutes. Add a little salt and jaggery to taste and cook with a little water till tender.

Brinjal Curry.—Broil a pinch of black gram 'dal' and red chillies. Fry coconut scrappings in a little oil. Powder all these well. Wash and cut brinjals into fine pieces. Mix with salt to taste and keep aside. Prepare seasoning with a little oil and mustard, then add brinjals, sprinkle little water add the powdered 'masalas' and cook till soft.

Menu X

'Idli'.—Soak rice and black gram 'dal' separately in water. Wash and grind these separately to a smooth paste, adding a little water. Mix these ground pastes together with salt to taste and keep overnight. The dough will rise up and get sour. Steam the dough in special vessel meant for preparing 'idlies.'

'Sambar'.—Wash and cook the 'dal' in 1½ cups of water with a pinch of turmeric powder till very soft. Wash and cut raddish leaves and cook for 10 minutes in the 'dal'. Add tamarind juice, chillies powder and salt to taste. Cook for 10-15 minutes. Remove from fire and season with mustard, pinch of asafoetida and curry leaves. Add a few green 'dhania' leaves.

Cucumber 'Pachadi'.—Wash and cut the cucumber into fine pieces. Add salt, green chillies to taste and mix well. Squeeze the juice of quarter lemon and garnish with coriander leaves.

Menu XI

Plain Rice.—Clean and wash the rice. Cook it in minimum quantity of water in steam in covered degchi till the water is absorbed in the rice.

Sprouted 'Moong' (Green Dal) Curry.—Cook the *sprouted 'moong' in required quantity of water in a degchi, covered with lid till it is tender. Add salt, haldi (turmeric) and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Cabbage and Potato 'Koottu'.—Cook red gram in the required quantity of of water in a degchi and mash it well. Wash and cut the potato and cabbage leaves ; add it to the 'dal' till tender. Add salt, 'haldi' and 'rasam' powder to taste. Cook for 5 minutes. Add a little grated coconut and season with mustard seeds and little oil.

Menu XII

Ragi Balls.—Boil water in a vessel, add salt, oil and ragi flour. Stir the ingredients briskly to prevent lumping and when it becomes thick, take out from fire and make into balls.

'Dal'-Drumstick Leaves and Onion 'Sambar'.—Wash and cook the 'dal in 1½ cups of water with a pinch of turmeric powder till very soft. Wash and cut drumstick leaves and cook for 10 minutes in the 'dal'. Add tamarind juice, chillies powder and salt to taste and cook for 10—15 minutes. Remove from fire and season with mustard, a pinch of asafoetida and add a few green 'dhania' leaves.

Potato & Beans Vegetable.—Wash and cut the potato and beans. Grind the 'masala' namely, chillies, garlic and a little grated coconut into a fine paste and keep aside. Prepare seasoning of oil, mustard seeds and cumin seeds in a degchi, add the cut potatoes and beans, grind chillies, turmeric and salt to taste and stir well. Add the ground 'masala' and cook with a little water till tender.

Menu XIII

(a) *Kitchadi.*—Wash the rice in water. Roast green gram 'dal' slightly and wash it. Add washed 'dal' to rice and add water. Cook the rice. When it is almost cooked, add cumin seeds and pepper fried in oil and salt. When cooked well, remove from fire and serve hot.

(b) *Greens (Amaranth) Pugath.*—Wash amaranth. Cut the amaranth into pieces. Cook it in just enough water with salt. Season the pugath with mustard and oil.

(c) Roast the Groundunts before serving.

Menu XIV

Wash the rice in water. Take the seasoned Multipurpose Food and roast in the oil. Roast the cumin seeds in the same oil and powder it. Cook the greens in water. Cook the washed rice in water. When the rice is almost cooked, add the powdered cumin seeds. When the rice is cooked, add the roasted multi-purpose food and greens and mix it thoroughly. Remove from the fire and serve hot. Serve groundnut also.

**Method of sprouting.*—Soak the 'moong' in water for one day. Drain the water and tie the 'moong' in a wet piece of cloth overnight. Next day the moong is ready for use.

B. MENUS FOR WEST

Menu I.—'KHAMAN DHOKLA' AND SWEET RAGI

(a) 'KHAMAN DHOKLA'

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	60 gms.
Butter milk	150 c.c. (30 gms. curd)
Green chillies	a few
Mustard seeds	a little
Gingelly oil	half a teaspoon
Turmeric	a little
Asafoetida	a little
Coriander leaves	a few leaves
Salt	to taste

(b) SWEET RAGI

Ingredients	*Quantity of raw food-stuffs*
Puffed ragi	30 gms.
Jaggery	30 gms.
Groundnuts	15 gms.

Menu II.—'KHICHERI'

Ingredients	*Quantity of raw food-stuffs*
Rice	60 gms.
Lentils	60 gms.
Onion	30 gms.
Oil	half a teaspoon
Cumin	a little
Groundnuts	15 gms.
Coriander leaves	a few leaves
Ginger	a small piece
Salt	to taste

Menu III.—RICE AND 'DAL'

(a) RICE

Ingredients	*Quantity of raw food-stuffs*
Rice	90 gms.

(b) 'DAL'

Ingredients	*Quantity of raw food-stuffs*
Red gram 'dal'	60 gms.
Salt	to taste
Turmeric	a pinch
Chillies powder	a little
Raw mango or tamarind extract	to taste
Mustard or cumin	a little
Jaggery	a little
Oil	half a teaspoon

Menu IV.—JOWAR AND 'KUDDY'.

(a) 'JOWAR'.

Ingredients	*Quantity of raw food-stuffs*
Broken jowar	105 gms.
Salt	to taste

(b) 'KUDDY'.

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	30 gms.
Butter milk	240 c.c. (30 gms. curd)
Ginger	a small piece
Garlic	1 pod
Coriander leaves	a few
Green chillies	a few
Curry leaves	a few
Salt	to taste
Sugar	a pinch
Turmeric	a little
Gingelly oil	half a teaspoon

Menu V.—'USAL AND PARATHA'.

(a) USAL.

Ingredients	*Quantity of raw food-stuffs*
Whole green gram	60 gms.
Onion	10 gms.
Garlic	1 pod
Sugar	to taste
Salt	a little
Chillies powder	a little
Groundnut oil	half a teaspoon
Cumin	a little

(b) 'PARATHA'.

Ingredients	*Quantity of raw food-stuffs*
Wheat flour	60 gms.
Oil	half a teaspoon
Salt	to taste

Menu VI.–'KHATA DAL' AND 'POHE'.

(a) 'KHATA DAL'.

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal'	45 gms.
Salt	to taste
Sugar	a little
Green chillies	a few
Coriander leaves	a few
Lime or green mango	a small piece
Groundnut oil	a little
Mustard	a little

(b) 'POHE'

Ingredients	*Quantity of raw food-stuffs*
Rice flakes	60 gms.
Mustard	a little
Oil	One spoonful
Onions	10 gms.
Sugar	a little
Salt	to taste
Green chillies	a few
Turmeric	a pinch
Coriander leaves	a few
Roasted groundnuts	15 gms.

Menu VII.

Items & Ingredients	*Quantity of raw food-stuffs*
WHEAT CHAPATI (3)	
Wheat flour	70 gms.
SPROUTED 'MOONG' CURRY	
Green gram 'Dal'	28 gms.
CABBAGE & POTATO VEGETABLE	
Cabbage	28 gms.
Potato	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu VIII.

Items & Ingredients	*Quantity of raw food-stuffs*
'KHICHERI'	
Rice (home pounded or par-boiled)	70 gms.
'Moong' 'dal'	28 gms.
TOMATO-CUCUMBER SALAD	
Tomato	14 gms.
Cucumber	14 gms.
BRINJAL VEGETABLE	
Brinjal	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu IX.

Items & Ingredients	*Quantity of raw food-stuffs*
'MISSI ROTI'	
Wheat flour	70 gms.
Basen	14 gms
'Methi' (fenugreek) leaves	28 gms.

Items & Ingredients	*Quantity of raw food-stuffs*
'CHANA DAL'	
'Dal'	14 gms.
CAULIFLOWER & POTATO VEGETABLE	
Cauliflower	14 gms.
Potato	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu X.

Items & Ingredients	*Quantity of raw food-stuffs*
BAJRA ROTI	
Bajra flour	70 gms.
SPROUTED 'MOONG' CURRY	
'Moong' 'dal'	28 gms.
BEANS VEGETABLE	
Beans	28 gms.
MINT CHUTNEY	
Mint leaves	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XI.

Items & Ingredients	*Quantity of raw food-stuffs*
RICE VEGETABLE 'PULAV'	
Rice	56 gms.
Beans vegetable	14 gms.
Cauliflower vegetable	14 gms.
'Harhar dal' (Red gram)	28 gms.
'METHI' & POTATO VEGETABLE	
'Methi' leaves	28 gms.
Potato	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XII.

Items & Ingredients	*Quantity of raw food-stuffs*
JOWAR ROTI	
Jowar flour	70 gms.
Mixed vegetable (Brinjal & Beans)	28 gms.
'Moong' 'dal'	28 gms.

'DHANIA' CHUTNEY

'Dhania' Leaves	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Method of Preparing Recipes

Menu I

(a) *'Khaman dhokla'*.—The bengal gram 'dal' flour is soaked in butter milk and allowed to ferment for 18-20 hours. Salt, green chillies, turmeric and coriander leaves are added to the fermented product and steam-cooked till it sets. Mustard seeds and asafoetida are fried in oil and added to the 'dhokla' which is then cut into small pieces and served.

(b) *Sweet Ragi*.—The groundnuts are roasted, powdered and kept aside. The puffed ragi flour is mixed with the thick jaggery syrup and powdered groundnuts and served as such. It can also be made into balls.

Menu II

The sliced onions, ginger and cumin are fried in oil. The cleaned rice and 'dal' are added and fried for a few more minutes. Roasted and powdered groundnuts along with water and salt are added and the whole cooked till the grains are soft.

Menu III

(a) *Rice*.—Cleaned rice is cooked in water till the grains are soft and the water is absorbed.

(b) *'Dal'*.—Cleaned 'dal' is cooked till soft. All the ingredients except oil and mustard are added and cooked for a few more minutes. To the cooked 'dal' kept aside, seasoning of mustard or cumin in oil is added.

Menu IV

(a) *Jowar*.—Cleaned jowar is roasted till slightly brown, salt and water are added, and cooked till soft.

(b) *'Kuddy'*.—Chopped garlic is fried in oil till brown. Bengal gram 'dal' flour is mixed with butter milk and all the other ingredients except sugar and coriander leaves. It is added to the fried garlic and cooked till raw flavour disappears. Sugar and coriander leaves are added towards the end.

Menu V

(a) *'Usal'*.—Cleaned green gram is soaked overnight ; the water is drained and 'dal' kept moist for about 20 hours to sprout. Chopped garlic is fried in oil, chopped onion, cumin and chillies powder added and fried for a few minutes. Then the remaining ingredients along with the sprouted 'dal' are added and cooked till slightly soft.

(b) '*Paratha*'.—Wheat flour with the salt is kneaded into dough with water. Small portions of the dough are rolled into chapaties. One by one the chapaties are baked over a hot iron plate using a small amount of oil.

Menu VI

(a) '*Khata dal*'.—Cleaned 'dal' is soaked overnight. It is mashed and mixed with chopped green chillies, coriander leaves salt and sugar. Mustard fried in oil is added to this mixture.

(b) '*Pohe*'.—The mustard is fried in oil, chopped onions and green chillies and turmeric are added and fried for a few minutes. The rice flakes are cleaned, washed and added to the fried onions along with salt and cooked for a few minutes. Powdered groundnut, chopped green coriander leaves, scraped coconut and sugar are added in the end and mixed well. If desired, a little lime juice can be added before serving.

Menu VII

Wheat Chapati.—Take the wheat flour in a mixing bowl, add salt and mix into a loose dough by adding water. Knead well several times. Leave the dough at least for one hour. Divide into 3 balls and roll each ball into a chapati. Bake the chapaties on a hot iron pan (tawa) on both sides and finally puff them on live coal.

Sprouted 'Moong' Curry.—Cook the sprouted *'moong' in required quantity of water in a degchi covered with lid till it is tender. Add salt, 'haldi' and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Cabbage & Potato Vegetable.—Pick, wash and chop the cabbage. Wash and peal the potato and cut into small pices. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped cabbage and potato, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Menu VIII

'*Khicheri*'.—Clean, wash and soak the rice and 'dal' in a little water for about 15 minutes. Drain water and keep aside. Prepare seasoning in a degchi with a little oil by adding a bit of cinnamon, clove and curry leaves, add the rice and 'dal', stir well and cook with covered lid after addition of required quantity of water and salt and a pinch of 'haldi' to taste. Stir well till the 'Khicheri' is well cooked.

Tomato & Cucumber Salad.—Wash and slice the tomatoes and cucumber. Add salt and chillies to taste, just before serving. Also add some juice of lemon.

Brinjal Vegetable.—Wash and cut the brinjal. Prepare seasoning with a little oil, mustard and 'hing', add the cut brinjal and stir well. Add 'dhania' powder, green chillies, 'haldi' powder and salt to taste and cook covered with a little water till tender.

**Method of sprouting.*—Soak the 'moong' in water for one day. Drain the water and tie the 'moong' in a wet piece of cloth overnight. Next day, the 'moong' is ready for use.

Menu IX

'Missi' Roti.—Clean wash and chop the onion and 'methi' leaves, mix with wheat flour and 'basen', add salt to taste and required quantity of water and knead into a dough. Make roties and bake on hot 'tawa'.

'Chana Dal'.—Pick clean and wash the 'dal', soak it in just sufficient water. Cook it in the water till tender and add salt and 'haldi' to taste. Heat oil in a frying pan, fry the cut onion, add whole red chillies and chopped ginger, fry for a minute, add it to the cooked 'dal'.

Cauliflower & Potato Vegetable.—Wash and cut the cauliflower and potato. Grind the 'masala' namely, chillies, garlic and a little grated coconut into a fine paste and keep aside. Prepare seasoning of oil, mustard seeds and curry leaves in a degchi, add the cut cauliflower and potatoes and salt to taste and stir well. Add the ground 'masala' and cook with a little water till tender.

Menu X

'Bajra Roti'—Mix bajra flour with salt to taste and little boiling water and mix the flour to a dough. Knead the dough to get smooth consistency. Divide the dough into small balls and make roties. Bake these on hot 'tawa' and puff them on live coal.

Sprouted 'Moong' Curry.—Cook the sprouted 'moong' in required quantity of water in a degchi, covered with lid till it is tender. Add salt, 'haldi' and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Beans Vegetable.—Wash and cut the beans. Grind the 'masala' namely chillies, garlic and a little grated coconut into a fine paste and keep aside. Prepare seasoning of oil, mustard seeds and curry leaves in a degchi, add the beans and salt to taste and stir well. Add the ground 'masala' and cook with a little water till tender.

Mint Chutney.—Wash the mint leaves. Add salt, green chillies, and ginger to taste and grind into a fine paste. Squeeze the juice of a quarter lemon.

Menu XI

Rice Vegetable 'Pulav'.—Pick, wash and soak the rice for half an hour in a little water. Heat a little oil in a degchi and fry a piece of clove and cinnamon. Add the washed and drained rice, and chopped beans cauliflower. Mix and fry gently for a few minutes, stirring all the time. Add required quantity of hot water, salt to taste, mix thoroughly and bring to boil and cook on low fire for about half an hour with the lid on.

'Harhar Dal' (Red Gram).—Pick, wash and soak the 'dal' in water for half an hour. Boil water in degchi and add soaked 'dal', turmeric and chillies powder. When it begins to boil, reduce the heat covering the vessel with a lid and cook till the 'dal' becomes tender. Add salt and turmeric to taste. Fry chopped onion, ginger, 'garam-masalas' in oil, add it to cooked 'dal' and remove from fire.

'Methi' and Potato Vegetable.—Pick, wash and chop the 'methi' (fenugreek) leaves. Wash and peal the potato and cut into small pieces. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped 'methi' and potato, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Menu XII

Jowar Roti.—Mix jowar flour with salt to taste and a little boiling water and mix the flour to a dough. Knead the dough to get smooth consistency. Divide the dough into small balls and make roties. Bake these on hot 'tawa' and puff them on live coal.

Mixed Vegetable (Brnjial & Beans).—Pick, wash and chop the vegetable. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped vegetable, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

'Moong Dal'.—Pick, wash and soak the 'dal' in water for half an hour. Boil water in degchi and add soaked 'dal', turmeric and chillies powder. When it begins to boil, reduce the heat covering the vessel with a lid and cook till the 'dal' becomes tender. Add salt and 'haldi' to taste. Fry chopped onions, ginger, 'garam-masals' in oil, add it to cooked 'dal' and remove from fire.

'Dhania' Chutney.—Wash the green 'dhania'. Add salt, green chillies, and ginger to taste and grind into a fine paste. Squeeze the juice of a quarter lemon.

C. MENUS FOR EAST

Menu I.—RICE AND FISH CURRY

(a) RICE

Ingredients	*Quantity of raw food-stuffs*
Rice	105 gms.
Salt	to taste

(b) FISH CURRY

Ingredients	*Quantity of raw food-stuffs*
Fish	60 gms.
Mustard oil	half a teaspoon
Salt	to tast
Chillies powder	a little
Onions	10 gms.
Turmeric	a pinch
Coriander leaves	a few
Sugar	a little

Menu II.—'ROTI' AND 'CHURCHURI'

(a) 'ROTI'.

Ingredients	*Quantity of raw food-stuffs*
Jowar flour	120 gms.
Salt	to taste
Oil	half a teaspoon

(b) 'CHURCHURI'

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal'	30 gms.
Coconut milk	30 c.c. (5 gms. coconut)
Sugar	a little
Onion	30 gms.
Shredded cauliflower	a little
Salt	to taste
Turmeric	a pinch

Menu III.—'PISH PASH'

Ingredients	*Quantity of raw food-stuffs*
Rice	90 gms.
Green gram	45 gms.
Carrots	30 gms.
Onions	60 gms.
French beans	30 gms.
Coriander leaves	a few leaves
Vanaspati	half a teaspoon
Salt	to taste

Menu IV.—'MISHTI MUDI' AND 'BASEN PURA'

(a) 'MISHTI MUDI'

Ingredients	*Quantity of raw food-stuffs*
Puffed rice	15 gms.
Jaggery	30 gms.

(b) 'BASEN PURA'

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	90 gms.
Mustard oil	one teaspoon
Onions	15 gms.
Green chillies	a few
Salt	to taste

Menu V.—'MATAR' AND 'MISHTI DAHI'

(a) MATAR

Ingredients	*Quantity of raw food-stuffs*
Dried peas	90 gms.
Salt	to taste
Chillies powder	a little
Tamarind extract	to taste

(b) 'MISHTI DAHI'

Ingredients	*Quantity of raw food-stuffs*
Milk	60 c.c.
Jaggery	30 gms.
Curd	a few c.cs.

Menu VI.—WHEAT 'KHICHERI'

Ingredients	*Quantity of raw food-stuffs*
Broken wheat	60 gms.
Lentils	60 gms.
Salt	to taste
Vanaspati	half a teaspoon
Cumin	a little

Menu VII.

Items & Ingredients	*uantity of raw food-stuffs*
Plain rice (home pounded or par-boiled)	70 gms.
'MACHI JOL' (fish curry)	
Fish	28 gms.
'PALAK'—POTATO VEGETABLE	
Palak	28 gms.
Potato	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu VIII.

Items & Ingredients	*Quantity of raw food-stu*
'KHICHERI'	
Rice	70 gms.
'Moong' 'dal'	28 gms.
TOMATO & CUCUMBER SALAD	
Tomato & Cucumber	28 gms.
MIXED VEGETABLE	
(pumpkin leaves, pumpkin, brinjal, etc.)	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu IX.

Items & Ingredients	*Quantity of raw food-stuffs*
RICE VEGETABLE	
Rice	70 gms.
Vegetable (cabbage, potato, carrot, etc.)	28 gms.
'Masoor dal'	28 gms.

Items & Ingredients	*Quantity of raw food-stuffs*
AMARANTH LEAFY VEGETABLE (CHOWLAI)	
Amaranth leaves	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu X.

Items & Ingredients	*Quantity of raw food-stuffs*
WHEAT LUCHIS	
Wheat flour	70 gms.
CAULIFLOWER & POTATO VEGETABLE	
Cauliflower	28 gms.
Potato	28 gms.
SPROUTED 'MOONG' CURRY	
'moong' 'dal'	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XI.

Items & Ingredients	*Quantity of raw food-stuffs*
PLAIN RICE	
Rice (home pounded or par-boiled)	70 gms.
FISH CURRY	
Fish	28 gms.
MIXED VEGETABLE	
(Carrot, raddish, potato, etc.)	28 gms.
GREEN MANGO CHUTNEY	
Green mango	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XII.

Items & Ingredients	*Quantity of raw food-stuffs*
WHEAT CHAPATI (3)	
Wheat flour	70 gms.
'Moong Dal'	28 gms.
'METHI' AND POTATO VEGETABLE	
'Methi' leaves	14 gms.
Potata	14 gms.

Items & Ingredients	*Quantity of raw food-stuffs*
MINT CHUTNEY	
Mint leaves	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XIII.

Ingredients	*Quantity of raw food-stuffs*
Rice	70 gms.
Greens (Amaranth) mashed	112 gms.
Fish fry	70 gms.
Groundnuts	14 gms.
Oil	one teaspoon

Method of Preparing Recipes

Menu I

(a) *Rice.*—Cleaned and washed rice grains are cooked in water till soft.

(b) *Fish curry.*—Fish is cleaned and cut into small pieces. The sliced onions are fried in oil till slightly brown. Fish pieces are added and fried for a few more minutes. All the other ingredients except coriander leaves are added and cooking continued till fish is soft. Coriander leaves are added towards the end.

Menu II

(a) *Roti.*—Jowar flour is mixed with salt and water and the dough is divided into two equal portions. Each portion is flattened with wet fingers into chapati on a hot iron pan smeared with oil. The chapati is cooked rom both sides.

(b) '*Churchuri*'.—All the ingredients, except coconut and salt are boiled till soft. Coconut milk and salt are added and cooking continued for a few more minutes.

Menu III

Cleaned rice and 'dal' are roasted for a few minutes. It is then cooked in water along with whole peeled onions, slices of carrots and cut beans and salt till the grains are soft. Chopped coriander leaves and vanaspati are spread in a layer on the top of the cooked pish-pash.

Menu IV

(a) '*Mishti Mudi*'.—Jaggery is made into a thick syrup with water and mixed with puffed rice.

(b) '*Basen Pura*'.—Bengal gram 'dal' flour is mixed with chopped onions, green chillies and salt made into a thin paste with water. Ladleful of mixture are spread evenly over heated iron pan smeared with oil. They cooked from both sides.

Menu V

(a) *'Matar'*.—The peas are soaked overnight and then boiled in water till soft and excess water drained. The condiments are added and mixed well.

(b) *'Mishti Dahi'*.—Luke warm milk is mixed with powdered jaggery and a little curd and kept aside to ferment for about 12 hours. The sweet curd will set.

Menu VI

Cumin is fried in the vanaspati and wheat is then added and fried till golden brown. The remaining ingredients are added and cooked in water till the grains are soft.

Menu VII

Plain Rice.—Clean and wash the rice. Cook it in minimum quantity of water in steam in covered degchi till the water is absorbed in the rice

'Machi—Jol' (*Fish curry*).—Clean and wash the fish thoroughly. Cut into small pieces and cook till tender in a little water. Roast the condiments, *viz.*, a little shredded coconut, coriander, red chillies and cumin, and grind with a pinch of turmeric, a little garlic and tamarind. Mix the ground masalas with the cooked fish, add a little water and salt to taste and boil for sometime till gravy is left. Season with mustard oil and cumin seeds.

'Palak'-Potato vegetable.—Pick, wash and chop the 'palak.' Wash and peel the potato and cut into small pieces. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped 'palak' and potato, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Menu VIII

'Khicheri'.—Clean, wash and soak the rice and 'dal' in a little water for about 15 minutes. Drain water and keep aside. Prepare seasoning in a degchi with a little oil by adding a bit of cinnamon, clove and curry leaves, add the rice and 'dal', stir well and cook with covered lid after addition of required quantity of water and salt and a pinch of 'haldi' to taste. Stir [illegible] till the 'khicheri' is well cooked.

Tomato & Cucumber Salad.—Wash and slice the tomatoes and cucumbers. Add salt and green chillies to taste and juice of a quarter lemon and [illegible] well.

Mixed Vegetable.—Pick, wash and chop the vegetable. Heat oil in [illegible] and cut green chillies and chopped onion and fry for five minutes. Add [illegible] chopped vegetable, salt and 'haldi' to taste. Cook with a little water [illegible] the covered lid till tender.

Menu IX

Rice Vegetable (*Cabbage, Potato, Carrot, etc.*).—Pick, wash and soak the [illegible] for half an hour in a little water. Heat a little oil in a degchi and fry [illegible] of clove and cinnamon. Add the washed and drained rice, and [illegible] vegetable. Mix and fry gently for a few minutes, stirring all the time. [illegible] required quantity of hot water, salt to taste mix thoroughly and [illegible] to boil and cook on low fire for about half an hour with the lid on.

'Masoor dal'.—Pick, wash and soak the 'dal' in water for half an hour. Boil water in degchi and add soaked 'dal', turmeric and chillies powder. When it begins to boil, reduce the heat covering the vessel with a lid and cook till the 'dal' becomes tender. Add salt and turmeric to taste. Fry chopped onions, ginger, 'garam-masalas' in oil, add it to cooked 'dal' and remove from fire.

Amaranth Leafy Vegetable.—Pick, wash and chop the amaranth leaves. Prepare seasoning in a degchi with a little oil, mustard seeds and green chillies, add the cut amaranth leaves and stir for a few minutes. Add a little salt and jaggery to taste and cook with a little water till tender.

Menu X

Wheat 'Luchis'.—Sieve the flour into a mixing bowl and rub in some oil. Add salt to taste and make into a dough. Divide into 4-5 portions, shape these into balls and roll out each one with the help of a little dry flour into thin and round 'luchis'. Get them all ready and then fry them separately and quickly in deep hot oil and drain them thoroughly.

Cauliflower & Potato Vegetable.—Wash and chop the cauliflower. Wash and peel the potato and cut into small pieces. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped vegetable, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Sprouted 'Moong' Curry.—Cook the sprouted 'moong' in required quantity of water in a degchi, covered with lid till it is tender. Add salt, 'haldi' and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Menu XI

Plain Rice.—Clean and wash the rice. Cook it in minimum quantity of water in steam in covered degchi till the water is absorbed in the rice.

Fish Curry.—Clean and wash the fish thoroughly, cut into small pieces and cook till tender in a little water. Roast the condiments *viz.*, a little shredded coconut, coriander, red chillies and cumin and grind with a pinch of turmeric, a little garlic and tamarind. Mix the ground 'masalas' with the cooked fish, add a little water and salt to taste and boil for some time till gravy is left. Season with mustard oil and cumin seeds.

Mixed Vegetable.—Fry a little bengal gram 'dal', green chillies, coriander seeds, cumin and a pinch of asafoetida and turmeric in a little oil and grind into a paste adding a few coconut scrappings. Prepare seasoning in a degchi with a little oil, a few mustard seeds and curry leaves and add the washed and cut vegetables to it, stir for a few minutes and cook with a little water with covered lid after addition of salt and jaggery to taste. When it is nearly cooked, add the ground 'masala' and again cook for a few minutes ti it i s tender.

Green Mango Chutney.—Wash the green mango. Pick a few mint leaves and onions. Wash the mint, peel onions and mango and add salt and chillies to taste and grind all the ingredients to a fine paste.

Menu XII

Wheat Chapati.—Take the wheat flour in a mixing bowl, add salt and mix into a loose dough by adding water. Knead well several times. Leave the dough at least for one hour. Divide into 3 balls and roll each ball into a chapati. Bake the chapaties on a hot iron pan (tawa) on both sides and finally puff them on live coal.

'*Moong Dal*'.—Pick, wash and soak the 'dal' in water for half an hour. Boil water in degchi and add soaked "dal," turmeric and chillies powder. When it begins to boil, reduce the heat covering the vessel with a lid and cook till the 'dal' becomes tender. Add salt and 'haldi' to taste. Fry chopped onions, ginger, 'garam-masalas' in oil, add it to cooked 'dal' and remove from fire.

'*Methi*' *and Potato Vegetables.*—Pick wash and chop the 'methi.' Wash and peel the potato and cut into small pieces. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped 'methi' and potato, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Mint Chutney.—Wash the mint leaves, green chillies and a piece of onion. Add salt to taste and grind all the ingredients into a fine paste. Add a few drops of fresh lemon.

D. MENUS FOR NORTH

Menu I.—'Missi' Roti.

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	60 gms.
Wheat flour	60 gms.
Spinach or fenugreek leaves	90 gms.
Groundnut oil	half a teaspoon.
Onion	10 gms.
Green chillies	a few
Salt	to taste.

Menu II.—Bajra and 'Basen' Curry.

(a) Bajra.

Ingredients	*Quantity of raw food-stuffs*
Dehusked bajra	120 gms.
Salt	to taste.

(b) Curry.

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	15 gms.
Buttermilk	180 c.c. (30 gms. curd).
Groundnut oil	half a teaspoon
Onion	15 gms.
Chillies powder	a pinch
Turmeric	a pinch
Coriander seeds	a little
Salt	to taste

Menu III.—MAIZE ROTI AND 'AALU CHOLE'.

(a) MAIZE ROTI.

Ingredients	*Quantity of raw food-stuffs*
Maize flour	120 gms.
Salt	to taste.
Celery seeds(ajwan)	a little
Groundnut oil	half a teaspoon

(b) 'AALU CHOLE'.

Ingredients	*Quantity of raw food-stuffs*
Kabuli 'chana' (gram)	45 gms.
Potato	30 gms.
Bengal gram 'dal'	10 gms.
Onion	15 gms.
Chillies powder	a little
Tamarind extract	to taste
Salt	to taste
Groundnut oil	half a teaspoon

Menu IV.—'DALIA'.

Ingredients	*Quantity of raw food-stuffs*
Broken wheat	60 gms.
Green gram 'dal'	60 gms.
Jaggery	60 gms.

Menu V.—GREEN GRAM 'LADOO' AND 'PAKORA'.

(a) GREEN GRAM 'LADOO'.

Ingredients	*Quantity of raw food-stuffs*
Green gram 'dal'	60 gms.
Jaggery	30 gms.

(b) 'PAKORA'.

Ingredients	*Quantity of raw food-stuffs*
Bengal gram 'dal' flour	30 gms.
Spinach	90 gms.
Oil	enough to fry
Salt	to taste
Chillies powder	a little

NOTE:—Oil actually absorbed by the 'pakora'=2 teaspoons.

Menu VI.—'RAWAN' AND 'CHIDWA'.

(a) 'RAWAN'.

Ingredients	*Quantity of raw food-stuffs*
Rawan (cowgram)	90 gms.
Lime	1/4
Salt	to taste
Chillies powder	a little

(b) CHIDWA

Ingredients	*Quantity of raw food-stuffs*
Rice flakes	30 gms.
Jaggery	30 gms.

Menu VII.

Items & Ingredients	*Quantity of raw food-stuffs*
MAIZE ROTIS (3)	
Maize flour	70 gms.
BENGAL GRAM (CHANA DAL)	28 gms.
'SARSON KA SAG'	
Mustard leaves	28 gms.

Menu X.

Items & Ingredients	*Quantity of raw food-stuffs*
WHEAT CHAPATIES (3)	
Wheat flour	70 gms.
'MOONG DAL' & 'PALAK'	
'Moong dal'	28 gms.
'Palak'	28 gms.
BEANS VEGETABLE	
Beans	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt	to taste

Menu XI.

Items & Ingredients	*Quantity of raw food-stuffs*
MAIZE & 'PALAK' CHAPATI (3)	
Maize flour	70 gms.
'Palak'	28 gms.
BLACK GRAM (URD DAL) AND TOMATO	
'Urd dal'	28 gms.
Tomato	28 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt.	to taste

Menu XII.

Items & Ingredients	*Quantity of raw food-stuffs*
VEGETABLE RICE (CAULIFLOWER AND POTATO).	
Rice	70 gms.
Cauliflower	28 gms.
Potato	28 gms.
SPROUTED 'CHANA' CURRY	
'Chana dal'	28 gms.
CHUTNEY (MINT OR DHANIA)	
Mint or 'Dhania' leaves	14 gms.
Oil	7 gms.
Condiments (chillies, turmeric, mustard seeds, cumin, etc.) and Salt.	to taste

Menu XIII.

Items & Ingredients	*Quantity of raw food-stuffs*
CHAPATI	
Whole wheat flour	112 gms.
GEEEN GRAM 'DAL'	
Green gram 'dal' (with husk)	28 gms.
CARROT SALAD	
Carrots	56 gms.
Mustard 'Saag' (Rape leaves) or Spinach	112 gms.
Pappaya	

Method of Preparing Recipes

Menu I

All the ingredients, except oil are mixed and kneaded into a dough. Small portions of dough are rolled into chapaties on flat board and placed on heated iron pan. The roti is turned when slightly baked, a little oil poured and roti is cooked from both sides.

Menu II

(a) *Bajra.*—Cleaned dehusked bajra free from bran is steam-cooked with the salt till soft.

(b) *Curry.*—Bengal gram 'dal' flour (Basen) is mixed with butter milk, salt, turmeric, chillies powder and the mixture is kept aside. Sliced onions and coriander seeds are fried in oil and mixed with "basen". The mixture is cooked in water with constant stirring till thick, and till the raw taste disappears.

Menu III

(a) *Maize Roti.*—The flour and celery seeds are mixed with salt and hot water is added gradually and kneaded for about five minutes. The dough is made into two balls. Each ball is placed on a heated iron pan smeared with a little oil and is spread into chapaties with wet fingers and cooked, a little oil is smeared on the uncooked side and the chapaties cooked from the other side also.

(b) *'Aalu Chole'.*—The gram and bengal gram 'dal' are soaked overnight and cooked in just sufficient water till quite soft. The cooked 'dals' are mixed with fried onions, boiled potatoes ad spices and cooked for a few minutes. Tamarind extract is added towards the end. There should be little gravy in the final preparation.

Menu IV

Broken wheat is roasted in a pan, green gram and water added and cooked till grains are soft; a thin syrup of jaggery strained free of impurities is added . The cooking is continued for a few minutes till the preparation is semi-solid in consistency.

Menu V

(a) *Green gram 'ladoo'.*—The 'dal' is roasted and powdered. A thick syrup of jaggery is mixed with the flour and made into two balls.

(b) *'Pakora'*.—Bengal gram flour, salt and chillies powder are mixed and made into a thick paste with water. Chopped vegetable is added and small balls of the mixture is deep fried in the oil. The oil remaining after frying may be used for other preparations.

Menu VI

(a) *'Rawan'*.—Cleaned 'rawan' is soaked overnight, cooked in water till soft and excess water drained off. Salt, chillies and lime juice are added to the cooked 'rawan'.

(b) *'Chidwa'*.—Cleaned pressed rice is served with a piece of jaggery.

Menu VII

Maize Roti.—Mix maize flour and mustard leaves, add salt to taste and a little boiling water and mix the flour to a dough. Knead the dough to get smooth consistency. Divide the dough into small balls and make roties. Bake these on hot 'tawa' and puff them on live coal.

Bengal Gram (Chana Dal).—Pick, wash and soak the 'dal' in water for half an hour. Boil water in degchi and add soaked 'dal', turmeric and chillies powder. When it begins to boil, reduce the heat covering the vessel with a lid and cook till the 'dal' becomes tender. Add salt to taste. Fry chopped onions, ginger, 'garam-masalas' in oil, add it to cooked 'dal' and remove from fire.

'Sarson ka Sag'.—Wash and chop the mustard leaves and cook it in covered vessel with minimum quantity of water after addition of salt, green chillies and ginger. Cook till tender and mash well. Season with chopped onion fried in oil.

Mixed Salad.—Wash and slice the tomatoes, carrots and raddish. Add salt and green chillies to taste and juice of a quarter lemon, mix well.

Menu VIII

'Missi' Roti.—Clean, wash and chop the onion and 'methi' leaves; mix with wheat flour and 'basen', add salt to taste and required quantity of water and knead into a dough. Make roties and bake on a hot 'tawa'.

Carrot Vegetable.—Wash and cut carrots into slices. Heat oil in a degchi and fry the 'masalas' (green chillies, turmeric powder, etc.). Add the carrots and salt to taste and cook in minimum quantity of water with the lid closed till the carrots are tender. Garnish with chopped green 'dhania'.

'Amla'—Mint Chutney.—Pick and wash mint leaves, wash and cut the amla into pieces and grind with the ingredients with green chillies and salt to taste into a fine paste.

Menu IX

Wheat Chapati.—Take the wheat flour in a mixing bowl, add salt and mix into a loose dough by adding water. Knead well several times. Leave the dough at least for one hour. Divide into 3 balls and roll each ball into a chapati. Bake the chapaties on a hot iron pan (tawa) on both sides and finally puff them on live coal.

'Palak'—Potato Vegetable.—Pick , wash and chop the 'palak'. Wash and peel the potato and cut into small pieces. Heat oil in a pan, add cut green chillies and chopped onion and fry for five minutes. Add the chopped

'palak' and potato, salt and 'haldi' to taste. Cook with a little water with the covered lid till tender.

Sprouted 'Moong' Curry.—Cook the sprouted* 'moong' in required quantity of water in a degchi, covered with lid till it is tender. Add salt, 'haldi' and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Menu X

Wheat Chapati.—Take the wheat flour in a mixing bowl, add salt and mix into a loose dough by adding water. Knead well several times. Leave the dough at least for one hour. Divide into 3 balls and roll each ball into a chapati. Bake the chapati on a hot iron pan on both sides and finally puff them on live coal.

'Moong Dal' and 'Palak'.—Soak the 'moong dal' in water for hal an hour and cook it in required quantiy of water to a soft consistency. Pick wash and chop the 'palak'. Cook it in 'moong dal' for 10 minutes. Add salt, 'haldi' green chillies and 'masala' and season with oil and asafoetida.

Beans Vegetable.—Wash and cut the beans. Prepare seasoning with a little oil, mustard and asafoetida, and the cut beans and stir well. Add "dhania" powder, green chillies, 'haldi' powder and salt to taste and cook covered with a little water till tender.

Menu XI

Maize & 'Palak' Chapati.—Make a dough with the maize flour. Wash and cut the 'Palak' leaves and mix with the dough. Add salt to taste, mix well. Make roties, bake on a hot 'tawa'.

Black Gram 'dal' and Tomato.—Pick, clean and wash the 'dal' and soak it in just sufficient water. Cook in the water till tender and add salt and 'haldi' to taste. Heat oil in a frying pan, fry the cut onion, add whole red chillies and chopped ginger, fry for a minute, add sliced tomatoes, cook for 5 minutes and add it to the cooked 'dal'.

Menu XII

Vegetable Rice (Cauliflower & Potato).—Pick , wash and soak the rice for half an hour in a little water. Heat a little oil in a a degchi and fry a piece of clove and cinnamon. Add the washed and drained rice, and chopped cauliflower and potato. Mix and fry gently for a few minutes, stirring all the time. Add required quantity of hot water, salt to taste, mix thoroughly and bring to boil and cook on low fire for about half an hour with the lid on.

Sprouted 'Chana' Curry.—Cook the sprouted** 'Chana' in required quantity of water in a degchi covered with lid till it is tender. Add salt, 'haldi' and green chillies to taste. Continue cooking for another 10 minutes. Season with oil and little mustard and 'jeera'.

Chutney.—Wash the mint or 'dhania' leaves, green chillies and a piece of onion. Add salt to taste and grind with ingredients into a fine paste. Add a few drops of fresh lemon.

**Method of sprouting :* Soak the 'moong' in water for one day. Drain the 'moong' in a wet piece of cloth overnight. Next day, the 'moong' is ready for use.

***Method of sprouting.*—Soak the 'chana' in water for one day. Drain the 'chana' in a wet piece of cloth overnight. Next day, the 'chana' is ready for use.

APPENDIX C-V

Some of the nutritious food products that have been developed in India.

Indian Multi-purpose Food (MPF).—A multi-purpose food, similar in nutritive value to the American MPF, has been developed at the Central Food Technological Research Institute in Mysore, in collaboration with the Indian Institute of Science in Bangalore.

The Indian Multi-purpose Food is at present available in three forms :—

(i) Seasoned variety designed for use in the preparation of savoury dishes, contains in addition to the normal components in the form of drits, the seasoning material made up of salt, spices, etc.,

(ii) Unseasoned variety which is meant for use in the preparation of sweet dishes such as toffees, porridges, puddings, etc., contains only the normal components in finely powdered form.

(iii) Unseasoned variety with 20 per cent skimmed milk powder is designed for feeding the weaning infants and the convalescents and for the treatment of protein malnutrition in children.

The Indian M. P. F. in any of these forms has the advantage that it does not require change in food habits. In fact, it is so versatile that it can be incorporated to the extent of 20 per cent in any of the common food preparations. In this way it helps in enhancing both the nutritive value and the palatability of the preparation.

The Central Food Technological Research Institute, Mysore, is at present manufacturing only two varieties of Indian M. P. F. (seasoned and unseasoned) and is making supplies in packings of 10 and 30 lbs. containers.

Composition of Indian Multi-Purpose Food and Bengal gram Dhal

Constituents	M.P.F.		Bengal gram dhal.	
	Per Ounce	Per cent	Per Ounce	Per cent
Protein (g).	12.0	41.9	6.0	24.0
Fat (g)	2.4	8.5	1.3	4.5
Carbohydrate (g)	10.2	35.8	16.4	57.5
Calcium (mg)	190	665	30	90
Phosphorous (mg)	234	820	90	330
Iron (mg)	1.5	5.1	2.5	8.8
Vitamin A (I.U.)	857	3000	..	..
Vitamin B (Thiamine) (mg)	0.4	1.3	0.1	0.38
Vitamin B (Riboflavin) (mg)	1.0	3.0	0.04	0.15
Nicotinic acid (mg)	4.0	14.0	0.6	2.2
Vitamin D (I.U.)	71	300	..	..
Calories	111	387	105	365

II. **Nutro biscuits.**—Nutro biscuits are produced for the Meals for Millions Association of India according to the formula evolved by the Central Food Technological Research Institute, Mysore. These biscuits are very nutritious as they are fortified with vitamins and minerals and defatted groundnut flour for enriching the protein content. They help in meeting the protein deficiency in our diet and are particularly useful for growing children. Composition of Nutro biscuits per ounce :

Vitamin A	3300.00 I. U.	Vitamin D	200.00 I.U.
Vitamin B1	0.55 mg.	Nicotinic Acid	5.00 mg.
Vitamin B	0.55 mg.	Calcium	50.00 mg.

III. **Groundnut Extract Curd.**—A liquid extract is produced from groundnuts in the same way as for soyabean. A lactic, fermented curd prepared from the extract has been found to be an acceptable product.

Recently a method has also been developed for processing groundnut expeller cake of edible quality into curd containing about twice as much protein as the curd from whole groundnuts.

Comparative Composition of Groundnut Milk and Cow's Milk per 100 *Grams.*

Items	Unit	Groundnut Milk	Cow's Mil
Total solids	g.	12.07	12.62
Protein	g.	3.00	3.30
Fat	g.	5.20	3.75
Carbohydrate	g.	3.07	4.85
Ash	g.	0.80	0.72
Calcium	g.	110.00	110.00
VITAMIN CONTENT PER LITER OF MILK			
Thiamine	mg.	0.65	0.45
Riboflavin	mg.	2.00	1.70
Niacin	mg.	11.10	1.76
Ascorbic acid	mg.	17.70	15.90
Vitamin A	I.U.	1,400	1,320
Vitamin D	I.U.	200	20

NOTE.—The groundnut milk is fortified with calcium vitamins A and D, riboflavin and ascorbic acid).

IV. **Low Cost Malt Food.**— A process for the preparation of a highly nutritious low cost malt food has been developed recently at the Central Food Technological Research Institute, Mysore. The product consists of a blend of cereal malt, low fat groundnut flour, roasted pulse flour, dried skim milk and sugar, and is fortified with important vitamins of minerals. Animal experiments have shown that the malt food when incorporated at a level of 10 per cent in a poor rice diet has a supplementary value comparable to that produced by the same level of dried whole milk. The malt food when cooked in about 8 parts of water yields a highly nutritious porridge with a pleasant taste.

APPENDIX C-VI.

Combating malnutrition in school children by supplementary foods—trial at Poonamalle Health Unit.

In the Poonamalle Health Unit area supplementary feeding with different food supplements was arranged among 550 school children as an experimental measure to appraise to what extent the existing undernutrition among school children, revealed by nutrition surveys, could be combated. For the purpose of the experimental study, the recipients were classified into 5 groups and they received the following supplementary foods (in addition to their own home foods):

1. One group received no supplementary food.
2. One group received only multivitamin tablets.
3. One group received only skim milk.
4. One group received skim milk and multivitamin tablets.
5. One group received skim milk in addition to the supplementary mid-day cereal meal and a vegetable side dish yielding about 400 calories per day.
6. One group received multivitamin tablets in addition to the supplements under group 5.

The heights and weights of these children and their nutritional status were appraised prior to the starting of the experimental feeding and immediately after the experimental feeding was completed. On an average the children were fed with supplements for 60 days and the children of the different groups were of comparable socio-economic status. At the close of the experimental period, it was found that the improvement in growth and development, as evidenced by the increase in weight during an estimated period of 50 days, was the maximum in the group receiving mid-day meals plus skim milk plus multivitamin tablets. Next in descending order were the groups receiving mid-day meal plus skim milk, the group receiving skim milk plus Multivitamin tablets, the group receiving skim milk only and the group receiving multivitamin tablets only, and the least increase in weight was recorded by the group receiving no supplementary food of any kind. For instance, in the 6 year age group among boys fed for 60 days on the various supplementary foods, the average increase in weight during 60 days was 3·03 lbs. in the mid-day meal plus skim milk plus mutivitamin tablets group, as compared with 2·49 lbs. in the mid-day meal plus skim milk and 1·14 lbs. in the milk plus multivitamin tablets group and 1·109 lbs. in the group with skim milk alone and ·66 lbs. in the group with multivitamin tablets alone and the least figure, an increase of 0·25 lbs. was recorded in the small control group where no supplementary food of any kind was given. The above study, though it deals only with small numbers for a limited period of supplementary feeding, reveals that the undernutrition prevailing in these low economic groups among the school children can be combated only by increasing their calorie intake by a cereal mid-day meal, supplying first class protein and calcium by about 8 oz. of reconstituted skim milk, with necessary supplementation, multivitamin tablets to combat vitamin deficiencies prevailing for ensuring optimum growth and health. The distribution of multivitamin tablets alone does not combat malnutrition unless the gross calorie deficiency prevailing is made good. This also brings home the fact that in any attempt to combat malnutrition on a large scale, the greatest emphasis should be laid down on the provision of free mid-day cereal meals to the indigent school children.

MID-DAY MEALS SCHEME IN MADRAS STATE

The Madras Scheme of free school meals to poor children in elementary schools was launched in 1956. It was intended to achieve the double purpose of (i) enrolling poor children who remain outside the school on account of the poverty of their parents and (ii) to give at least one satisfactory meal to poor children who attended the school but remained hungry throughout the school day. The scheme has served not only these purposes but at the same time improved the health of the children and consequently, their receptiveness to education.

2. The mid-day meal provided under this scheme generally consists of cooked rice served with sambar or curd and vegetable or pickles. The normal cost of this meal is 10 nP. Towards this, the local donors contribute 4 nP. per meal per pupil and the Government 6 nP. During 1961-62 the CARE organisation generously came forward to give support to the Mid-day Meal Scheme, offering to supply corn meal, rice, wheat, vegetable oil and milk powder, and this has been accepted by the Govt. About 27,000 schools are covered by the mid-day meal scheme. Every day about 12 lakhs of children are being fed.

3. The mid-day meal scheme is administered by local mid-day meal committees under the chairmanship of Panchayat Presidents. The overall supervision is with the Education Department.

CORPORATION OF MADRAS

Mid-Day Meals Scheme

Introduction.—The responsibility of imparting instruction in the three R's to the young children in the City devolved on the Corporation of Madras and in the discharge of such a heavy obligation, it was faced with two major problems :

(1) The children attending the Corporation Elementary Schools were of very poor health, most of them suffering from avitaminosis and malnutrition, and

(2) Poor socio-economic condition of the families of the children which often forced them to stay away from schools and eke out their livelihood, assisting their parents in their day toils.

It was therefore found necessary to evolve some remedial measures to improve the health of these future citizens of this land and to ease the strain on the slender economic resources of the parents at least to the extent of one meal a day for the children. And, the Corporation, as the pioneers in the field of medical inspection of school children, hit upon the idea of providing additional nutritious diet to supplement the poor rations which the children were used to at home. The idea soon took concrete shape and the Scheme of free mid-day meals to the poor and deserving school children was introduced in selected schools in needy localities in the City as revealed by the organised system of medical inspection in force in the schools. Such a pioneering effort had the double advantage of improving the attendance at school and supplying the necessary supplementary diet to the children to ensure their healthy growth which eventually would assist in greater attention being paid by the children to their studies. Families getting an income of below Rs. 50 per mensem and whose children were ill-nourished, as revealed by medical examinations, were brought under the Scheme.

Origin

The Scheme was inaugurated in 1925 on a modest scale among 500 children, the supply being made through contractors. Experimental diet like, idli sambhar, bun sambhar, rice and curd and rice and sambhar were successfully tried and finally, rice and sambhar was found most suitable and was adopted as the best supplementary mid-day diet on the ground of its potential of a fairly high calorific value and nutritional ingredients consistent with the food habits of the children.

Growth and Development

Supplies through contractors were not found so satisfactory from the sanitary and hygienic point of view. It was therefore felt that even at a little extra cost, if need be, the Department might itself undertake the supply on a better basis and so, the Education Department took over the direct responsibility for the supply in 1929.

A Centre for the preparation of the meals was started in Chintadripet which in the then circumstances and the quantum of work seemed to be a satisfactory central location. From about 3,000 meals in 1929 the size of the Scheme grew rapidly and in 1947 it was 8,000 meals per day and the area over which the distribution had to be made also increased enormously with the then out-lying areas being included within the City limits. It was then felt necessary to relieve the Educational Officer of the responsibilities for the preparation and distribution of meals as he could not justifiably be expected to devote the necessary time and attention to ensure proper control over quality and quantity as he would be fully occupied with the introduction of the Scheme of Compulsory Elementary Education in the City and so the entire responsibility was transferred to the Health Officer as he would be in a better position to ensure quality control and the entire organisation of mid-day meals was decentralised. Two more Centres, one each to serve the North and South ends of the City were started and together with the one at Chintadripet, they constituted the three Units from which meals flowed to the various schools in the City according to a fixed schedule.

The Centre to serve the northern areas is located at premises No. 11, Padvattamman Koil Street, Kondithope, Madras, and the one to serve the southern areas is located at premises No. 2/26, Srinivasa Perumal Koil Street, Gopalapuram, Madras. The Centre at Chintadripet confined its activities to the remaining area in between these two.

Periodical Increase of Mid-day Meals

Year.	No. of meals supplied.	Year.	No. of meals supplied.	Year.	No. of meals supplied.	Year.	No. of meals supplied.
1925	500	1934	4,000	1943	6,000	1952	8,000
1926	500	1935	4,000	1944	6,000	1953	10,000
1927	1,000	1936	5,000	1945	7,000	1954	11,000
1928	2,000	1937	5,000	1946	7,000	1955	12,000
1929	3,000	1938	5,000	1947	8,000	1956	13,000
1930	3,000	1939	5,000	1948	8,000	1957	18,000
1931	3,000	1940	6,000	1949	8,000	1958	28,730
1932	4,000	1941	6,000	1950	8,000	1959	28,730
1933	4,000	1942	6,000	1951	8,000	1960	28,730

Year after year, the strength in the Corporation Schools grew rapidly and in consequence, the benefit of the Scheme had to be extended gradually to a greater number of children. From 8,000 meals a day in 1947, it has now grown to the extent of 29,000 meals and each Centre had an equitable share of the responsibility for the preparation and distribution of the meals. The North and South Centres distribute about 10,000 neals a day each and the Central Range about 9,000.

Preparation and Distribution

Meal is prepared in all the Centres early in the mornings and by 7 a.m. is kept ready for transport to the Centres of consumption. Six Vans, two for each Centre, take these to the various schools in three trips at an interval of 2 hours each commencing from 7 a.m., so that by about 12 noon, all the schools concerned receive their daily quota of meals. Separate containers of suitable sizes, two sets for each school, are utilised for this purpose. One set carried the meal, rice and sambhar separately to the school and the other set, similarly left in the school the previous day, is carried back to the Centre for use on the next day. To ensure the prompt supply of meals to the schools, the work of preparing the meal is commenced at about 2 a.m. in the Centres.

The diet articles including vegetables are purchased by contract system, on the basis of tender. The tenders are disposed of by the Standing Committees (Health) and (Taxation and Finance) on the basis of the recommendation of the Health Officer and the Commissioner. A Supervisor is in charge of each of the Centres and he places indents for the diet requirement for each Centre with the contractor concerned and receives them after satisfying himself as to their quality and quantity. He is responsible for maintaining proper accounts for the receipts of the articles and their issues. The vessels for the preparation of meals are periodically tinned. A tools and plants register is maintained in each Centre. The Range Assistant Health Officers inspect each Centre periodically by surprise to ensure that the diet articles supplied are of the proper standard and that proper accounts are maintained in each Centre. The Supervisor also maintains a detailed chart showing the schools to which meal is supplied from that Centre, and the quantity and the number of meals so supplied. But for unavoidable reasons like break-down of vans, etc., the distribution of meals is completed by or before noon or half past each day. In case of break-down, the driver and the Supervisor concerned take such steps as may be necessary to ensure that the supplies reach the schools with the least avoidable delay.

As already mentioned the Scheme was inaugurated in a small way with about 500 meals per day but by stages it has grown to such huge proportions that nearly, 29,000 children are being fed every mid-day under the Scheme at present. An illustrative graph showing the different stages in its growth is appended.

Both Hindus and Muslim Schools are supplied with meals for 200 days in a year. The Hindu Schools have holidays on Saturdays and Sundays and the Muslim Schools on Fridays and Sundays. There are 253 Hindu Schools and 40 Muslim Schools.

The details of Range-wise supply of meals is as below :

	Schools	*Meals*
North Range	100	9,578
Central Range	100	8,942
South Range	93	10,210
TOTAL .	293	28,730

In every school, they are maintaining a list of pupils supplied with meals. On the finding and the recommendations of the Medical Inspectors of Schools, taken along with the details of their socio-economic conditions as reported on by the respective class teachers, children are selected for the benefit of full meals. Generally, the beneficiaries would be of the income-group of, below Rs. 50 per mensem.

Children answer a roll call prior to taking meals. When any child in the list is absent, meal is supplied to the next most deserving child and a list of such casual beneficiaries is maintained separately in each school.

As stated, two sets of containers are supplied for each school—two tinned brass containers for sambhar and two aluminium containers for rice. One in each is given to the School with meal and other set is removed by the van for use the next day. As soon as the food is received at the School it is weighed and the weight is duly recorded each day.

Plates supplied by Corporation for individual children are used. Food is distributed by the children themselves under the watchful eye of the teachers, who are posted for the purpose by turns. Every possible care is taken to ensure that the food is taken only by the children selected under the Scheme and that there is no waste.

Prior to food rationing in 1947, a measure of rice was used to feed about 10 children and a measure of dhal for 50 children. But after the introduction of rationing, a measure of rice is allotted to 17 children and a measure of dhal for 150 children.

Four Statements (A, B, C and D) of the different varieties of mid-day meal are appended.

When cooked each child now receives 12 oz. cooked rice, 8 oz. dhal, vegetables and sambhar, totalling 1¼ lbs. The cost per pupil works out to 9½ nP. or Rs. 19 per annum per pupil. For easy appreciation, the contents of each meal is given below in a tabulated form :

Rice and Sambhar (for one meal).

Food articles.	*Raw* (*weight*) (oz.)	*Cooked* (*weight*) (oz.)
Rice	3	12
Dhal	1/3	1/2
Condiments	3	3½
Vegetables	3	4
Vegetable Oil, etc.	1/25	1/25
Total . .	9-9/24	20

(Statement 'E' shows the calorific value of each meal supplied at present).

Administration

The Commissioner, Corporation of Madras, is in over-all control of the entire aspect of the Scheme. In this work, he is ably assisted by the Health Officer and his band of enthusiastic Assistants, who spare no pains to ensure that the full benefit of the Scheme reaches the maximum number of children. They exercise strict supervision and control at every stage of the Scheme.

The Supervisors, as already stated are in immediate charge of the entire Scheme. They receive stock of all raw materials required, look to their conversion into finished products and ensure their eventual receipt by the children. At every stage in this long process their activities are under constant check, observation and assistance by the Health Officer, his Assistants, the Medical Inspectors and the Head Masters and thier Assistants.

Set-up of Personnel under the Scheme

Commissioner
Health Officer
Assistant Health Officers

Medical Inspectors
Education Department Head Masters and their Assistants
Mid-day Meals Supervisors

An idea of the phenominal growth and expansion of the Scheme may be had from a glance at the tabular statement below detailing chronologically the stages in its development since 1947 in respect of the extent of benefit ensured and the personnel which had to tackle it.

Year	No. of schools to which mid-day meals supplied	No. of children fed	Staff at each Centre	
1947—48	145	7,625	1 Supervisor—1 Head Cook—4 Asst. Cooks—2 Watchmen—6 thozhilalies—1 Food Van with a driver.	
1948—49	145	7,625	The same staff as above with an addition of 2 thozhilalies for each centre.	
1949—50	145	7,625	Do.	Do.
1950—51	145	7,625	Do.	Do.
1951—52	145	7,625	Do.	Do.
1952—53	145	8,900	Do.	Do.
1953—54	155	11,560	1 Supervisor—1 Head Cook—3 Cooks—1 Watchman—6 thozhilalies—Food Van with a Driver.	
1954—55	155	11,560	Do.	with 2 additional thozhilalies for each Range.
1955—56	155	12,800	Do.	Do.
1956—57	224	18,400	Do.	Do.
1957—58	253	21,500	Do.	Do.
1958—59	291	28,730	Do.	Do.
1959—60	295	28,730	Do.	2 Food Vans with 2 drivers for each Centre.

Change of Menu

The question of menu has been under frequent examination with a view to the evolving of a suitable, palatable, nutritious and economical dish and during the recent Mayoralty of Mrs. Tara Cherian, a varied menu as per statement below was brought into force after thorough investigation and examination. It was indeed due to her untiring efforts that a Committee of experienced Officials and non-officials was constituted to examine and suggest ways and means of improving the 'quality' and 'quantity' aspects of the Scheme.

The Committee inspects and checks the centres of meals preparation and the centres of distribution. They take counsel from nutritional experts in the City and suggest reforms in the menu.

As a result of intensive experiments at the Gopalapuram Centre an extensive field study over a fairly long period the Committee at last evolved our types of menu to be adopted one daily as programmed below:

Monday	Rice and Sambhar.
Tuesday	Curd, Rice and Gojju.
Wednesday	Tamarind bath and Kootu.
Thursday	Kadambam.

This variety meets with the whole-hearted approval of the beneficiaries under the Scheme. The children were sounded at various stages of the experiment. The teachers and Head Masters were also asked to take an active part in eliciting the nature of response from the pupils for this set of menu. It was found that there has been and continues to be a clear, spontaneous and unequivocal acceptance of this schedule.

The provision of steam boilers of the type recently tried successfully in the Centres of food production could naturally be expected to cut down fuel costs appreciably and also to cope up with the increased work involved in lesser time.

It is proposed to provide one of the Mid-day Meal Centres with the modern cooking and mixing apparatus. The cost of creation of the equipment and purchase of 3 lambrettas is estimated as high cost. Stainless steel utensils have to be purchased at a cost of Rs. 15,000 for distribution of meals.

The cost for the provision of modern cooking and mixing apparatus is as follows :

	Rs.
1. Two steam boilers of about 700 lbs. per hour capacity with pipes, fittings, traps, etc.	34,000
2. One water heater	1,500
3. Four cooking wats	7,500
4. Four mixing thoughts of stainless steel lining	7,000
5. Four thutees with stainless steel lining	2,000
6. One steel over-head tank of 500 gallons capacity	3,000
7. Electrical pump set and electrical connections	2,000
8. Three lambrettas	13,000
9. One food van	20,000
10. Modern kitchen tables with special lights, choppers and laddlas	5,000
11. Modern ovens	5,000
12. Stainless steel vessels for distribution of meals	10,000
TOTAL	1,10,000

The representative of the UNICEF who recently visited the City was kind enough to arrange for a fair donation for this noble cause from America. We may approach the UNICEF for a liberal donation of Rs. 1.5 lakhs which will be of great help to us in the feeding of the poor children.

Other Activities

The foregoing is only one side of this picture in this pioneering effort of the Corporation. In cases of emergencies occasioned by natural calamities like fire and floods in any part of the City, the three Centres pool their resources and rush to the rescue of the victims by supplying them with meals, free of cost, till the emergency is overcome. Besides this, they are the agencies through which the periodical gifts of milk powder, etc., are distributed to deserving children easily. Again they are in charge of the supply of meals to the four Creches—the rest house for young pre-school children—maintained by the Corporation during that portion of the day when their mothers are away at work.

Other illustrative charts and sketches are appended.

STATEMENT A

Showing the quantity and quality of articles used for *Rice and Sambhar* to feed 10,210 pupils on all School Working days.

Mid-day Meal Centre South Range

Sl. No.	*Name of the Article*	*Quantity used per day*	*Contract Rate*		*Per*	*Cost of the Article*	
			Rs.	nP.		Rs.	nP.
1	Rice	565 mrs.	0	86	Mr	485	90
2	T. Dhal	64 mrs.	0	71	Mr	45	44
3	Chilly Powder	21 viss	1	82	Viss	38	22
4	Tamarind	24 viss	2	97	Md	8	91
5	Sambhar Powder	19 mrs.	0	74	Mr	14	06
6	Rice Powder	6½ mrs.	0	74	Mr	4	81
7	Turmeric	32 palams	0	95	Viss	0	76
8	Asafoetida	27 palams	6	92	Viss	4	67
9	Gingelly Oil	6¼ viss	18	95	Md	14	81
10	Mustard	20 viss	9	00	Md	3	09
11	Chillies Red	38 palams	16	30	Md	1	94
12	Salt	32 mrs.	0	04¾	MR	1	52
13	Firewood	49 gundus	54	81	Ton	67	14
14	Vegetables	48 mds.	1	50	Md	72	00
15	Onions	9½ mds.	3	25	Md	30	88
16	Green chillies	12 viss	0	88	Viss	10	56
17	Karivepillai	4 viss	0	75	Viss	3	00
18	Coriander leaves	32 palams	1	90	Viss	1	52
					TOTAL COST	809	23

	nP
Total cost of 1 meal (rice 12 ozs. plus sambhar 8 ozs.) 1¼ lbs	8
Establishment cost for 1 month Rs. 1,435 for 1 day Rs. 48 per meal	—
Transport charges for 1 month Rs. 1,560 for 1 day Rs. 52 per meal	½
Wear and tear charges 1 month Rs. 1,500 for 1 day Rs. 52 per meal	—
	9½

Cost of one meal—9½ nP.

(Monday, Friday and Saturday)

STATEMENT B

Showing the quantity and quality of articles used for *Cuard Rice* for 10,210 pupils on all Working days.

Mid-day Meal Centre, South Range.

Sl. No.	*Name of the Article*	*Quantity used per day*	*Contract Rate*		*Per*	*Cost of the Article*	
			Rs.	nP.		Rs.	nP.
1	Rice	565 mrs	0	86	Mr	485	90
2	Chilly powder	8 viss	1	82	Viss	15	57
3	Tamarind	22 viss	2	97	Md	8	17
4	Sambhar Powder	5 mrs	0	74	Mr	3	70
5	Rice powder	2 mrs	0	74	Mr	1	48
6	Turmeric	45 palams	0	95	Viss	1	07
7	Asafoetida	2¾ viss	6	92	Viss	19	03
8	Gingelly oil	16 viss	18	95	Md	37	90
9	Mustard	12 viss	9	00	Md	13	50
10	Chillies Red	38 palams	16	30	Md	1	94
11	Salt	38 mrs	0	04¾	Mr	1	81
12	Firewood	49 gundus	54	81	Ton	67	14
13	Vegetables	36 mds	1	50	Md	54	00
14	Onions	6 mds	3	25	Md	21	3
15	Green chillies	12 viss	0	88	Viss	10	56
16	Karivepillai	8 viss	0	75	Viss	6	00
17	Coriander leaves	7 viss	1	90	Viss	13	30
18	Ginger	¼ md	4	70	Md	1	18
19	Garlic	½ viss	8	10	Md	0	51
					TOTAL COST	763	79

	nP.
Milk Powder—(Free of Cost)—139 lbs.	
Total cost of one meal (curd rice 16 oz. plus gojju 3 oz.) 3 lbs.	7½
Establishment-cost for 1 month Rs. 1,435, for 1 day Rs. 48, per meal	½
Transport charges for 1 month Rs. 1,560, for 1 day Rs. 52, per meal	½
Wear and tear charges 1 month Rs. 1,500, for 1 day Rs. 52, per meal	½

Total Cost per meal—9 nP.

STATEMENT C

Showing the quantity and quality of articles used for *Tamarind bath* to feed 10,210 pupils on all school working days.

Mid-day Meal Centre, South Range.

Sl. No.	*Name of the Article*	*Quantity used per day*		*Contract Rate*		*Per*	*Cost of the Article*	
				Rs.	nP.		Rs.	nP.
1	Boiled rice	565	mrs	0	86	Mr	485	90
2	B. Gram Dal	16	mrs	0	58	Mr	9	28
3	Salt	40	mrs	0	04¾	Mr	1	90
4	Turmeric	5	viss	0	95	viss	4	75
5	Gingelly Oil	5	mrs	18	95	Md	94	75
6	Tamarind	10	mrs	2	97	Md	29	70
7	Mustard	6½	viss	9	00	Md	7	41
8	Asafoetida	2	viss	6	92	viss	13	84
9	Chillies red	6	viss	16	30	Md	12	23
10	Chilly powder	10	viss	1	82	viss	18	20
11	Sambhar powder	9	mrs	0	74	Mr	6	66
12	Rice powder	2	mrs	0	74	Mr	1	48
13	B. Gram Dhal	11	mrs	0	87	Mr	0	57
14	Venthaiyam	2	viss	0	77	Mr	1	54
15	Firewood	49	gundus	51	81	Ton	67	14
16	Vegetables	24	mds	1	50	Md	36	00
17	Onion	2¾	mds	3	25	Md	8	94
18	Green chillies	3	viss	0	88	viss	2	64
19	Karivepillai	6	viss	0	75	viss	4	50
20	Coriander leaves	½	viss	1	52	viss	0	76
				TOTAL COST			817	19

	nP.
Total cost of one meal (tamarind 15 oz. + 2 oz. kuttu)	8
Establishment cost for 1 month Rs. 1,435, for 1 day Rs. 48, per meal	½
Transport charges for 1 month Rs. 1,560, for 1 day Rs. 52, per meal	½
Wear and tear charges 1 month Rs. 1,500, for 1 day Rs. 52, per meal	½
	9½

Total Cost per Meal—9½ nP.
(Wednesday)

STATEMENT D

Statement D showing the quantity and quality of articles used for *Kathambam* .. . to feed 10,210 pupils on all working days.

Mid-day Meal Centre, South Range.

Sl. No.	*Name of the Article*	*Quantity used per day*		*Contract Rate*		*Per*	*Cost of the Article*	
				Rs.	nP.		Rs.	nP
1	Rice	565	mrs	0	86	Mr	485	90
2	T. dhal	64	mrs	0	71	Mr	45	44
3	Chilly powder	31	viss	1	82	viss	56	42
4	Tamarind	44	viss	2	97	Md	16	34
5	Sambhar powder	19	mrs	0	74	Mr	14	06
6	Turmeric	45	palams	0	95	viss	1	07
7	Asafoetida	1¾	viss	6	92	viss	12	11
8	Gingelly oil	9	viss	18	95	Md	21	32
9	Mustard	4½	viss	9	00	Md	4	78
10	Chillies red	9	viss	16	30	Md	18	34
11	Salt	32	mrs	0	04¾	MR		
12	Firewood	49	gundus	54	81	Ton	67	14
13	Vegetables	36	mds.	1	50	Md	54	00
14	Karivepillai	7½	viss	0	75	viss	5	62
15	Coriander leaves	1¾	viss	1	90	viss	2	58
				TOTAL COST			806	64

Total cost of 1 meal (16 oz.)	8
Establishment cost for 1 month Rs. 1,435, for 1 day Rs. 48, per meal	½
Transport charges for 1 month Rs. 1,560, for 1 day Rs. 52, per meal	½
Wear and Tear charges 1 month Rs. 1,500, for 1 day Rs. 52, per meal	½
	9½

Total Cost per Meal—9½ nP.

STATEMENT E

Calorific Value of each Meal supplied at present.

Sl. No.	*Article used for one meal*	*Quantity used*	*Calorific value per oz.*	*Total calories*
	Rice and Sambhar			
1	Rice	3 oz.	100	300
2	Dhal	1/3 oz.	100	33
3	Condiments	3 oz.	38	114
4	Vegetables	3 oz.	41	123
5	Vegetable oil, etc.	1/25 oz.	352	14
			Total calories for 1 meal	584

—*Concld.*

Sl. No.	*Article used for one meal*	*Quantity used*	*Calorific value per oz.*	*Tota Calori es*
	Curd Rice and Gojju			
1	Rice	3 oz.	100	300
2	Curd	1— oz.	101	15
3	Condiments	1 oz.	38	38
4	Vegetables	2¼ oz.	41	92
5	Vegetable oil, etc.	2/25 oz.	352	28
	Total calories per meal			610
	Tamarind Bath and Koottu			
1	Rice	3 oz.	100	300
2	Dhal	1/7 oz.	100	14
3	Condiments	3 oz.	38	114
4	Vegetables	1-5/8 oz.	41	67
5	Vegetable oil, etc.	1/5 oz.	352	70
	Total calories per meal			565
	Ka thambam			
1	Rice	3 oz.	100	300
2	Dhal	1/3 oz.	100	33
3	Condiments	3– oz.	38	133
4	Vegetables	2¼ oz.	41	92
5	Vegetable oil, etc.	1/20 oz.	352	18
	Total calories per meal			576

Opinion of Prominent Personalities who visited the Mid-day Meals Centre of the Corporation of Madras.

16-11-1948.

"It has been most interesting and helpful for me to visit your feeding centre and to see how the children of the City are being provided with a good meal at school. Madras has done pioneering work in this field and is continuing to make every effort to raise the health of its school children. With all good wishes."

(Sd.) ANNA MARY NOLL,
Rockefeller Foundation, Delhi.

20-12-1948.

"Visited the Mid-day Meal Centre and was pleased to see the excellent arrangements."

(Sd.) N. KRISHNAN,
Director of Public Health, Travancore.

16-3-1950.

"I visited the Mid-day Meal Centre. An extremely clean place particularly the kitchen and vessels. I much congratulate the Supervisor on an excellent show."

(Sd.) Dr. P. V. CHERIAN,
Mayor of Madras.

"Visited the Mid-day Meal Centre in company with R. Rukmani and R. Rajamanickam. I consider it a very useful programme for the growing children and congratulate this Corporation for this aot."

(Sd.) BACHATHAVANI,
Director of Health Services, Delhi.

Remarks of the Wheat Team—United States, dated 4-12-1958.

"This visiting U.S. Wheat Team has witnessed an out-standing job by the Municipality of Madras in their School Feeding Programme. We whole heartedly wish you every success."

(Sd.) ARTHUR M. CUMMINGS,
Foreign Agricultural Service,
Washington D.C.

(Sd.) GEORGE C. GERDER,
Wheat Growers, Alliance Mft.

(Sd.) JACK W. WILK,
Millers' National Federation,
Washington D.C.

(Sd.) OTTI AMEN,
Washington Association of Wheat
Growers, Fitzolle, Wash.

(Sd.) WAYNE GENTRY,
Wheat Association, New Delhi.

GOVERNOR OF MADRAS.

RAJ BHAVAN,
GUINDY, MADRAS-22.

November 25, 1958.

I had the pleasure of visiting the Centre of Cooking Mid-day Meals for the Corporation Elementary Schools and also the distributing arrangements in a most methodical way to different feeding centres in the City, in the presence of the Mayor, the Commissioner of the Corporation and other Health Officers, and also Sri Kamalakannan, who has been nominated as the candidate for the Mayoralty of the Madras Corporation to be elected on the 27th November. I was very much pleased and impressed with the method of cooking the various ingredients under hygienic condition and the efforts made by the Corporation authorities and the members of the staff in cooking a full and substantial mid-day meal to the children of the elementary schools. The surroundings were found very clean and the arrangement for cooking, in spite of the difficulty of the open oven, was satisfactorily done by the cooks who had to bear the heat of the open oven. I could see the difficulties will be increased while the morning is warmer.

The Health Department of the Corporation took over the cooking supervision and the distribution of the meals since 1947-48 for supply of food to the gradually increasing numbers of pupils in the elementary schools, and it is gratifying to note that the cost of production of mid-day meal has been considerably reduced. The cost of a meal reduced to 8 nP. and the cost of administration of staff and transport comes to about 1½ nP., the total coming up to 9½ nP. per meal.

I am glad also to see that to break up the monotony, they have an arrangement of preparing different kinds of food by rotation, so that curds and other substantial food are also being given to the pupils. The curd that was prepared out of the milk powder appeared to be very good. I am also happy to see that experiment is being made for supplying additional vitamins or food containing additional vitamins in certain areas. We are all proud that the Corporation arrangements to feed about 30,000 children at mid-day in the different schools in the City are managed so efficiently by a band of selfless officers and workers under the supervision of the Mayor, who has been taking a great deal of interest in the matter of feeding the children. To my mind the quantity of rice that is supplied seems to be too much for a boy of tender age. It needs examination if the quantity may be reduced and other substances like wheat products, vegetables, etc., may be added to increase the nutritive value of the food supplied to the pupils.

I convey my thanks to the Mayor and the Officers of the Corporation and the cooking staff who are taking such interest in arranging wholesome food for supply to about 30,000 pupils of the elementary schools under healthy surroundings. My good wishes will be always with them. I hope and trust that efforts will be made to bring in larger number of needy pupils under this beneficial scheme.

(Sd.) B. MEDHI,
(Bisnuram Medhi),
Governor of Madras

Opinions from distinguished visitors to the Mid-day Meal Centre.

8-1-1959.

"I had the privilege and pleasure of visiting the Gopalapuram Mid-day Meal Centre along with a party of students from the Lakshmi Bai College of Physical Education, Gwalior. The officials in charge explained the Scheme and showed us round. It is great work. I look forward to the day when the Scheme initiated by this Corporation spreads to all parts of India. It will not only contribute to improve health but in my opinion, schools more attractive."

(Sd.) P. M. JOSEPH,
Principal, Lakshmi Bai College of Physical Education, Gwalior.

7-2-1959.

"I have just visited the Madras Corporation Pioneering Scheme for supplying mid-day meals to poor school children. It is a wonderful example of an idea which became a reality because of the enthusiasm, energy and efficiency of its supporters. It is constantly growing and improving. I hope the idea will spread not only in Madras but throughout India, for it can influence greatly the health and well-being of the young generation on whom India's future will depend."

(Sd.) HARRIET BUNKER,
American Embassy, New Delhi.

11-2-1959

"The South Centre is clean, well maintained and the planning appear to be excellent. The food variety is in accordance with modern nutritional standards. All in all, it is a well-run establishment."

(Sd.) RICHARD E. PAULSON,
UNICEF Representative, U.S.A.

13-2-1959.

"Very interesting Scheme. The centralization in the preparation of meals has great advantage. The co-operation of teachers are very essential in order to provide education in nutrition. Congratulations !."

(Sd.) METHOP,
W.H.O.

(Sd.) BRUJO,
W.H.O. Nutrition Section, Gene

21-2-1959.

"I had the pleasure of visiting the meals Centre where meals are cooked for the Corporation School children. So for as the supply of meals to children is concerned, the Madras Corporation is unique. It is the only Corporation which has introduced mid-day meals for children. I went round this Centre and found it quite clean and tidy. I also tested the meal which was quite tasty.

I congratulate the Madras Corporation for having introduced this Scheme which is in the interest of well-fed children."

(Sd.) S. S. MIRAJKAR,
Mayor of Bombay.

DETAILED REPORT OF SKIMMED MILK

Administration of skimmed milk.—483 children in seven schools were selected for giving skimmed milk on school working days. The administration was begun on 1st September, 1954 and ended on 31st March, 1955. The total no. of days milk was given was 146 and the average attendance of children at the milk taking class was 124. Out of 483 children selected only 363 were available at the final stage. The rest of the children either left the school or were long absentees.

To assess the benefit of this measure two other groups of children were selected. One taking mid-day meals and the other not taking anything. The growth of the children as evidenced by the increase in the height and weight and the presence of nutritional ailments before and after the period were recorded. The period of observation extended to 7 months.

The following table shows the comparative height and weight increase and other particulars noticed.

No.	Group	Total No. of children	Total No. of working days	Average No. of days the children attended	Average age of these groups	Average income per month	Average weight increase during the period	Percentage of ailments cured and improved
1.	Milk	363	146	104	8	42	2.83	49.70
2.	Mid-day Meals .	304	146	124	9	33	4.15	46.43
3.	Control	308	146	111	9	43	2.24	25.85

It may be inferred from the Statement that while mid-day meal feeding is a good method for accelerating the growth of children, administration of milk is more effective in the cure and prevention of nutritional ailments.

It would seem to be of immense benefit if both are combined in the control of nutritional ailments and acceleration of the growth of the school children. A tumbler of milk to children taking mid-day meals would go a long way in improving their nutritional condition as it would result in giving a balanced diet.

The following statement shows the details of the incidence of ailments relating to nutrition and the effect of treatment measures adopted :

Sl. No.	Nature of defects	Milk Group			Mid-day Meal Group			Control Group		
		Total No. of defects	No. cured	No. improved	Total No. of defects	No. cured	No. improved	Total No. of defects	No. cured	No. improved
1.	Malnutrition . .	226	37	80	203	33	53	200	7	49
2.	Xero-derma . .	83	38	12	91	44	10	58	15	2
3.	Xero-opthalmia . .	92	37	18	98	33	10	55	5	6
4.	Growth of addipose tissue	90	45	3	75	50	..	78	18	2
5.	Rickety chest . .	76	1	..	56	5	1	51	..	9
6.	Stomatitis . .	53	22	21	47	12	13	31	6	2
7.	Night blindness . .	5	1	..	3	1	..	1	..	..
8.	Conjunctivitis . .	15	8	5	2	2	..	2	2	..
	TOTAL .	660	189	139	575	180	87	476	53	70

Certain difficulties have also to be borught out. Milk as given was not relished by many of the children and was taken reluctantly. It requires boiling and additional sugar to improve the taste. If this is to be adopted steps should be taken to see that the reconstitution and boilding of milk and addition of sugar are done at the Meals Centres and delivered at the Schools daily.

MULTI-PURPOSE FOOD

Multi-Purpose Food from the Central Food Techonological Institute, Mysore was given to assess the value of it. The Scheme was inaugurated by H. E. Shri Sri Prakasa, the then Governor of Madras at the Mid-day Meals Centre, South Range on 10th October, 1956. Savouries and sweets prepared out of this powder were distributed to the invitees. The taste was good and was appreciated by those present. Two schools were selected for this scheme. 100 children who were in the mid-day meals list, 50 from each of the 2 schools were selected as beneficiaries. Another group of 100 children, 50 from each of these 2 schools, were selected as controls. The first group of 100 children were given mid-day meals to which 1/3 oz. of M. P. food was substituted for 1/3 oz. of dhal in the Sambhar. This second group serving as controls received the usual mid-day meals with 1/3 oz. of dhal in the sambhar. The meals were given for a period of 90 working days beginning from 21st November, 1956 to 15th April, 1957. For assessing the value only those who had put in 50% of the attendance have been taken into account. Thus the percentage of attendance among the beneficiaries was 77 and among the controls 79. The average age of the children in both groups was 10. The average earnings of the parents in the beneficiaries was Rs. 40 p.m. while that of the controls was Rs. 44 p.m. The examination contained of recording height and weights, malnutrition and vitamin deficiencies and adequacy of adipose tissue in the body.

The following are the results :

Beneficiaries.—The average height at the commencement was 48·04″ and at the final examination it was 48·802″, showing a growth of 0·8″ in height.

The average weight at the commencement was 44·6″ lbs. and at the final examination its was 53·54″ showing a gain in weight of 8·94″ lbs.

Controls.—The average height in this group was 48·04″ at the initial examination and 48·08″ at the final examination, showing a growth of 0·76″ during the same period.

The average weight at the initial examination was 45·39 lbs. and at the final examination it was 48·86, showing a gain in weight of 3·5 lbs.

It can be seen from the above finding that children given M. P. Food shown ·8″ increase in height and gained 8·7 lbs. in weight while those not given this food gained only 0·76″ in height and 3·5 lbs. in weight during the corresponding periods.

There was significant improvement noticed in the nutritional condition of the children also, as shown below :

		Beneficiaries			Controls			Percentage Cured & Improved	
Sl. No.	Defects	Total defects	No. cured	No. improved	Total defects	No. cured	No. improved	Beneficiaries	Controls
1.	Malnutrition . .	37	19	9	55	16	11	75·7	49·1
2.	Stomatitis . . .	78	32	27	87	34	32	75·6	75·7
3.	Kerosis eye . .	53	35	12	72	34	19	88.7	73·6
4.	Night blindness . .	13	5	4	5	4	..	69.2	80.0
5.	Xeraderma . .	14	8	4	5	1	1	85·7	20.0
6.	Rickety chest . .	29	22	3	29	10	10	86.2	69.0
7.	Difficulty due to Adipose tissue.	12	8	1	16	6	7	75.0	81·3

Total percentage of cured among M. P. F. 80.4

Total percentage of cured among controls 68.8

On the whole it can be said that the addition of multi-purpose food to the mid-day meal has resulted in more rapid gain in weight and improvement in the health condition of children even though the quantity given was very meagre.

From

The Commissioner,
Corporation of Madras,
Ripon Buildings, Madras-3.

To

The Secretary,
Board of Revenue (Civil Supplies),
Chepauk, Madras.

H. D. C. No. B1/7170/57, *Dated 11th August,* 1960.

Sir,

Sub. : *Food & Drugs.—Mid-day Meals to School Children—Distribution—Wheat products—Introducing of—*

Ref. : *Government Memorandum No.* 67013/*A*1/57-27 *dated* 13*th April,* 1959 *and your letter No.* 19839/*EL*/59 (*C.S.*) *dated* 29*th June,* 1959.

The variations in the figures of subsidy claimed from Government in August 1957 and October 1958 are due to the reasons explained below :—

The Commissioner of Civil Supplies, Madras had a discussion in the matter cited with the former Commissioner, Corporation of Madras and stated that the Corporation should take steps to imrove the dietary habits of the school children, and that action should be taken to supply bread or bun to them at least in the form of mixed diet comprising of half meal with rice and sambhar or curd and the other half with one bun, and that the expenditure over and above the budgetted allotment consequent on the supply of one bun to each child would be borne by Government.

In the budget for 1957-58, the Corporation had a provision of Rs. 4,52,700 for distribution of rice with sambhar as mid-day meals to the school children, and it was able to feed 22,000 children out of this allotment. As Government came forward for rendering financial aid for the issue of mixed diet cited, and desired that the scheme should be started very early, it was proposed to start the scheme of feeding 30,000 children by 15th August, 1957, *i.e.* after the lapse of 50 days (school working days). As we are distributing the meals for 200 days in a year, we had estimated for 150 days during the year 1957-58 after the proposed date of 15th August, 1957. The cost of mixed diet required for the part of the year worked out to Rs. 7,34,375 as per particulars furnished below, whereas we had a provision of Rs. 4,52,700. We had to anticipate subsidy from Government for the balance of Rs. 2,81,675 to manage for the part of that year.

	Rs.
(i) Half meal with rice and sambhar or curd for 30,000 children for 200 days at Re. 0.0.10 per child	3,12,500
(ii) One Bun at Re. 0.1.6 for 30,000 children for 150 days as the scheme had to commence from 15-8-57	4,21,875
Total .	7,34,375

The matter was placed before the Council for consideration and a copy of the note was given to the Commissioner of Civil Supplies as required by him. It seems that he had furnished those figures to Government originally.

The Government suggested another proposal in October 57, (*vide* Government Memorandum. No., 67013/A2/57-9 dated 12th October, 1957) and requested the Board of Revenue to consult the Corporation of Madras and report whether wheat porridge could be substituted for bread and bun. The wheat porridge was tried with the children along with wheat uppumav. The Children relished well and preferred the latter. The result was communicated to Government in this office letter H. D. C. No. B1/7170/57 dated 17th October, 1958 stating that the latter scheme would be adopted by the Corporation, if the Government would give an annual subsidy of Rs. 3·20 lakhs which was worked out as per particulars furnished below :

	Rs. in lakhs
(i) Half meal with rice & sambhar or curd for 30,000 children for 200 days @ Re. 0.05 nP. per child	3.00
(ii) Half meal with wheat uppumav made out of sambhar wheat (broken) for 30,000 chidren for 200 days @ Re. 0.8 nP. per child	4.80
TOTAL .	7.80
Budgetted allotment for 1958-59	4.60
The excess cost involved	3.20

From the above figures, it would be clear that the subsidy requested for varied according to the methods proposal to be adopted. On the other hand, the subsidy of Rs. 2,81,675 represented the cost for the supply of the part of a year consisting of 150 working days during 1957-58 and that the other amount of Rs. 3·20 lakhs represented the cost of supply for a full year comprising of 200 working days. The figures had also to be changed according to the budgetted allotments for instance a sum of Rs. 4,52,700 was provided in 1957-58 and Rs. 4,61,600 in 1985-59. According to the budget allotment provided for the current year, *i.e.,* Rs. 4,92,100 the cost of supply of the proposed mixed diets on the basis of 30,000 children would be as follows :—

A. Mixed Diet consisting of half rice and one Bun:

	Rs. in lakhs
(i) Half meal with rice and sambhar or curd for 30,000 children for 200 days in a year @ Re. 0.05 nP. per child	3.00
(ii) One Bun @ Re. 0.10 nP. for 30,000 children for 200 days in a year .	6.00
Total cost for feeding 30,000 children	9.00
Amount provided for the budget for 1959-60	4.921
Subsidy expected from Government	4.079

B. Mixed diet consisting of half with rice and half with wheat uppumav :

	Rs. in lakhs
(i) Half meal with rice and sambhar or curd for 30,000 children for 200 days in a year @ Re. 0.05 nP, per head	3.00
(ii) Half meal with wheat uppumav at Re. 0.08 nP. per child for 30,000 children for 200 days in a year	4.80
TOTAL .	7.80
Budgetted allotment for 1959-60	4.921
Subsidy expected from Government	2.879

The Government called for another proposal through the Director of Public Health for implementing the suggestion of Director C. Gopalan of the Nutrition Research Laboratory, the weekly menus of which are as follows :

(i) Monday : Half quantity with rice and vegetable sambhar and the other half with *wheat uppumav.*

(ii) Tuesday : Half quantity with tamarind bath with koottu and the other half with sundal by using *bengal gram.*

(iii) Wednesday : Half quantity with curd and the other half with *wheat uppumav.*

(iv) Thursday : Half quantity with Kadambam and the other half with sundal by using green gram.

(v) Friday : Half quantity with rice and vegetable sambhar and the other half with *wheat uppumav.*

The annual expenditure to be incurred as per above menu comes to Rs. 7.32 lakhs, and the subsidy expected from Government for feeding 30,000 children is Rs. 2,399 lakhs as per particulars furnished below :

	Rs. in lakhs
(i) Cost for feeding 30,000 children according to the menus prescribed for Mondays, Wednesdays and Fridays—30,000 × 13 nP. per child × 3 days in a week × 40 weeks	4.68
(ii) Cost for feeding 30,000 children according to menus prescribed for Tuesdays and Thursdays, 30,000 × 11 nP. × 2 days × 40 weeks	2.64
TOTAL .	7.32
Budget allotment for 1959-60	4.921
Subsidy expected from Government	2.399

We are already adopting the method of supply of different menus in a week, and the children are satisfied with the supply. It is suggested that this third proposal submitted through the Director of Public Health may be implemented and recommended to Government for the early payment of reasonable subsidy required for this purpose.

(Sd.) N. Sankaran,
Commissioner.

11th August, 1959.

R. No. 83318-1-*FAO*/59 *Dated* 6*th February*, 1960

SUB. : *Feeding experiments with low-fat milks—F.A.O. Sponsored Scheme—Final Report.*

REF. : 1. *R. No.* 81541-18-*H*5/1955 *dated* 18*th January*, 1957 *of the Director of Public Health, Madras.*

2. *G. O. Ms. No.* 230, *Health dated* 24*th January*, 1958.

3. *R. No.* 81792-*FAO*-58 *dated* 5*th December*, 1958 *of the Director of Public Health, Madras.*

4. *Government Memorandum No.* 130794*A-H*7-59-1, *Health dated* 5*th September*, 1959.

Following a study of the milk problem in Madras City by a team of foreign experts, interested in the disposal of surplus milk powder in their countries, the F. A. O. of the United Nations made a gift of £5000 and 25 tons of milk powder to undertake controlled feeding experiments with low-fat milks. Government accepted the offer, and sanctioned a one year scheme of trial which had been formulated in consultation with the Nutrition Research Laboratories, I.C.M.R. and Dr. W.R. Aykroyd and Mr. K.K.P. Narasinga Rao of the Nutrition Division of the F.A.O. *vide*, G.O. Ms. No. 230, Health, dated 24th January, 1958 referred to above. The milk feeding trials were accordingly commenced in July 1958. An interim progress report detailing the genesis, planning and working of this scheme has already been sent to Government in my R. No. 81792-FAO/58 dated 5th December, 1958. The following is a general summing up of the operations on the scheme, with an attempted analysis of the field data as leading to the broad conclusions on the comparative merits of the three kinds of milks as shown in the latter part of the report.

Experimental Group

The feeding trials were undertaken in Madras City with 'Toned' milk, buffalo's milk and reconstituted skim milk, as prepared, bottled and supplied from the Government Milk Factory in Teynampet in 5 nearby schools, and in 10 schools with reconstituted skim milk alone as prepared in each of the respective schools by the teachers, with the milk powder supplied to them through the Block Development Officer. Schools in Madras City were selected by the Health Officer, Corporation of Madras. The children fed were all first enrolled on their volunteering, though a good number dropped off at different stages of the trial, owing to either some intervening illness, leaving the school for different domestic reasons, or in some cases the milk given being not to their taste. The statement below shows the general distribution of the children fed with skim milk, 'Toned' milk, and buffalo's milk. From a scrutiny of the economic status of the children it was found that they belonged by and large to the same socio-economic groups, with monthly income of parents ranging between Rs. 50—100.

STATEMENT NO. 1

Distribution of children fed with different milks

Madras City	Number of children selected and examined	Number which had milk feeding for over 100 days
Skim Milk Group		
Corporation Elementary School, Pycrofts Road, Madras . .	517	442
Toned Milk Group		
Corporation Elementary School, Saidapet	262	732
Corporation Central School, Saidapet	459	
Corporation High School, Saidapet	374	
Buffalo's Milk Group		
Corporation Elementary School, Lloyds Road, Madras . .	519	416
Control group		
Corporation Elementary School, Triplicane, Madras . .	500	394
Total .	197	197

It may thus be seen that apart from the controls, 3070 children were enrolled for the feeding while only 2193 were actually fed for over 10 days.

Staff and Equipments

The staff sanctioned for the experiment in the G. O. referred to, comprised of 3 Medical Officers, 3 Health Inspectors, 1 Typist and 3 peons.

Owing to dearth of Medical Officers for immediate deputation from service, they had to be recruited directly according to availability. Thus the first Medical Officer was appointed on 17th September 1958, the second on 2nd February, 1959 and the third on 14th February, 1959. The milk feeding was however commenced on July 1st, 1958 with the assistance of three Medical Inspectors of Schools of the Madras Corporation and the Primary Health Centre Medical Officers at Uthukottai, who carried out the recording of heights and weights and the initial nutritional assessment of the children before starting the feeding. The midway examination could not however be timed in each school, at exactly the half stage of the experiment. The final examinations were carried out during the last few weeks of feeding, and therefore the last recorded Heights and Weights of the children have been compared to those first recorded, for the statistical evaluation of results furnished in the latter part of this report.

The equipments purchased and supplied for these trials included one Lever type personal weighing machine with height measuring attachments, aluminium milk cans, basins, tumblers, etc.

Milk powder expended

25 tons (50,004 lbs.) of milk powder was received from the UNICEF on behalf of this scheme under instructions from the F.A.O. Of this, 7592 lbs. of milk powder was utilised at the Government Milk Factory for making 'Toned' milk and reconstituted skim milk for distribution in the 5 schools in the City. 11,340 lbs. was used for making skim milk in the 10 schools in Uthukottai. 90 lbs. of milk powder got deteriorated at Uthukottai and Madras and 9 lbs. was used up for periodical testing of quality in the Nutrition Laboratory. The balance of 30,983 lbs. has been issued for Maternal and Child Health Feeding in Madras, under advice from the UNICEF, communicated in Government Memorandum No. 85121-H7/59-5-Health dated the 13th July 1959.

The Milk feeding Scheme

The technical aspect of the scheme comprised of an (1) initial, midway and final nutrition assessment of the enrolled children, including a group of controls, (2) a survey of their home diets, and (3) a final assessment of results. The administrative aspect of the scheme involved the maintenance of accounts of the receipt, distribution, and disposal of unspent balances of 25 tons of milk powder and the budgetary control of the £5000 ($14,000/Rs. 68,125) donated by the F.A.O. for this scheme.

Nutritional assessments

3070 Elementary School children, included in the feeding programme in Madras and Uthukottai and 500 in the control group, were examined first for assessing their nutritional status. These examintations were conducted on a schedule proposed by the Nutrition Research Laboratories (I.C.M.R.). Statement Numbers II, III, IV and V appended to this report give a consolidated account of this aspect of the study, separately for children who had been fed with milk for less than 50 days, 50—100 days, 101—150 days and over 150 days. The midway and final examinations were carried out by the 3 Medical Officers appointed on the scheme, while prior to their appointment the initial examinations had been completed by 3 Medical Inspectors of Schools of the Madras Corporation and the Medical Officers, Primary Health Centre, Uthukottai.

The results as tabulated, show that the clinical signs of mal-nutrition, as recorded at the first examination had considerably improved after the milk feeding, irrespective of the kind of milk. Such improvements however have not been so striking among the controls, *vide* statements III, V and VI. Thus, considering only the group of children who had the benefit of milk for over 100 days, it may be seen that out of 938 boys and 654 girls, who were first graded on general apperance as 448 poor, 974 fair, and 170 good, had been regarded, after the 11 months of milk feeding, as 200 poor, 1184 fair, and 288 good. Even in respect of general clinical signs of nutritional deficiencies such improvements have been noted in the individual nutritional score cards of these children at the first and subsequent examinations. Thus in respect of the 3 groups fed on skim milk, 'Toned' milk and buffalo's milk, the rates of clearance of the observed deficiency signs, are shown below as percentages of the numbers of children who had the respective signs at the first examination *vide* statement No. VI.

STATEMENT NO. VI

Effects of Milk Feeding on Clinical Deficiency signs

Signs	Skim milk	Toned milk	Buffalo's milk	Controls
	Rates of clearance of deficiency signs			
Eye Signs				
Xerosis	88%	73%	80%	61%
Bitot's spot	77%	33%	73%	28%
Keratomalacia	97%	100%	96%	100%
Oral Signs				
Angular Stomatitis	97%	99%	100%	69%
Glossitis	100%	100%	100%	...
Skin Signs				
Phryonoderma	..	100%	100%	...
Dry skin	90%	89%	94%	25%
Rikets	29%	22%	30%	4%

These improvements in clinical signs, have been obviously more striking among the milk-fed groups, as compared to the controls. These findings of different medical officers, may not however be so good evidence, as those based on comparisons of increases in weights and heights, for purposes of grading the nutritive values of the three kinds of milk. Weights and heights of the individual children, recorded during the first and final examinations, were therefore submitted to a statistical analysis. The same lever type of personal weighing machine being used for these recordings, these data should naturally form a sounder basis for comparison.

Survey of home diets

The milk was given to the children as a supplement to their home diet, which varied from home to home and according to family income, etc. It was therefore necessary to obtain a general idea of their home diets. A diet survey was therefore undertaken, including about 30 families of these milk-fed children in each of four representative areas. The surveys were conducted for a week at each place by the Health Inspectors appointed on this scheme. The method of weighment of raw foodstuffs was adopted for these surveys. The data of the 4 diet surveys have been analysed in respect of both the food ingredients comprising the average diet, as well as of the nutrients provided by them. The surveys have also been analysed separately for different grades of income of the families, and appended to this report in statement Nos. VII and VIII.

It may be seen that the home diets of these children have been in general low in calories, and in respect of important ingredients like pulses, green leafy vegetables, milk, meat, fish, eggs and fruits, with corresponding low intakes of the essential nutrients, proteins, (especially animal proteins), fats, calcium, vitamin A and B2 (Riboflavin). The children in the milk feeding programme, mostly belonged to the income group of Rs. 50—100 p.m. and it is the diet of this particular income group which has direct reference in evaluating the benefits of extra milk fed to the children in this study. The average diet of the Uthukottai group, which in itself is sub-standard, may be seen in comparison, to be somewhat better in respect of most ingredients. The inadequacies of essential nutrients in the basic home diet are truly reflected in the quick improvements in clinical signs, as well as of the increases in weights, which followed the milk feeding.

The administrative aspects of this scheme cannot be adequately dealt with at present in this report, as matters relating to disposal of used equipments, the closure of accounts of expenditure on staff, etc. are still under correspondence, pending final orders of Government.

Analysis of weights and heights of the milk groups and control groups

In order to assess the comparative nutritive values of low fat milks (Skimmed milk, 'Toned' milk and buffalo milk), heights and weights and nutritional status of children fed with three kinds of milk had been recorded in the nutrition schedules specially prepared for the purposes. The measurements were actually made first a few days before starting the milk feeding, again during the course of feeding, and lastly towards the close of the feeding. As the three measurements were not equally spaced in all the places, the first and last ones have been taken for the statistical analysis.

The one year duration of the experiment actually included only about 185 milk feeding days, deducting periods of medical inspections, examination days, special holidays, vacations, etc. Some children dropped out of the experiment for different reasons, soon after the milk feeding commenced, some left the school for good, and even those who continued, were not uniformly regular. All the children who are reckoned for this experiment were not therefore fed for equal number of days. The distribution of children according to the number of days of feeding in the different experimental groups in Madras City is shown below :

STATEMENT NO. IX

Milk Attendance Analysed

Days fed	Skimmed milk	Toned milk	Buffalo milk
0 to 50 days	4	135	19
51 to 100 days	20	71	20
100 to 150 days	120	314	117
151 and above	322	418	300
TOTAL .	466	938	456

Weights of Boys and Girls

For purposes of statistical analysis, only the children fed for over 100 days have been considered, as the others might not have been benefited to any measurable extent.

To assess the nutritive value of milks, the increase in average weights and heights of boys and girls fed with different milks were compared with the increase in average weights and heights of those in control group in each year of age. The increases in average weights of the boys and girls in age groups 6—15 years, as well as those in control groups, are given in statements X and XI herewith appended. Observations on 3 boys and 3 girl aged 15-16 years in different milk groups have been omitted, as their numbers were too few in the respective groups.

It will be seen from the statement X that the increase in average weights of boys fed with skimmed milk is greater than that of boys in control group in the 5 age groups between 7-9 years and 10-13 years. The increases in the two age groups 10-11 and 11-12 only are however statistically significant, as compared to the control groups. The increases, lesser than those of controls in respect of the age groups 6-7, 9-10 and 13-14 years are not significant.

The average increase in weight among boys and with 'toned milk' is less than that of the control groups at all ages except that of 14-15 years. The increase in this particular age group is also not significant. The increases, lesser than those of controls, were not however significant except in two groups of 7-8 and 8-9 years.

The average increase in weight among boys fed with buffalo milk is greater than those of control groups in the five (5) age groups between the ages 8-12 and 14-15 years. But none of these increases are significant. The increases, lesser than those of controls, in the other age groups are not significant.

In respect of girls, data are available for controls only for 6 age groups (6-12 years), as the numbers have been either small or none in the 12-15 years groups. The analysis for significance therefore refers only to the first six groups. The increases of weights over those of controls were in general either greater than or equal to those of controls in all the milk groups, except those of one toned milk group (10-11 years) and of one buffalo milk group (6-7 years). It was however seen that only in one out of the 14 groups the increase was significant (buffalo milk group 8-9 years). The increase less than that of control, in respect of toned milk 10-11 years group was significant, while that of the buffalo milk group 6-7 years was not significant.

The above analysis of weight increases consequent on the three different kinds of milk fed to school children has not thus indicated any consistent difference in their nutritive qualities.

Heights of boys and girls

The increase in average heights of boys and girls in the different experimental groups as compared with those of the control groups are given in statements XII and XIII. It will be seen that the increase in heights among those fed with different kinds of milk is in excess of controls in a few age groups only. Even in these cases, the excess was less than 1/4 inch in most of the groups and ranged $\frac{1}{4}$ to $\frac{1}{2}$ inch in the following 6 groups only.

(i) Boys 6-7 years old treated with buffalo milk and those aged 11-12 years fed with 'Toned Milk'.

(ii) Girls in the age groups, 8-9 years, 10-11 years and 12-13 years who had skimmed milk and those aged 10-11 years fed with buffalo milk.

As the differences in the average heights between these 6 groups and their respective controls are small, their significance was not tested.

Summary

The report summarises the results to a scheme of milk feeding to study the comparative nutritive values of skim milk, 'Toned' milk and buffalo's milk. The feeding was carried out for about 11 months on nearly 185 school working days, among 3070 children between 5 to 16 years of age. Of these 2193 children only consumed milk for over 100 days, while the remaining were more irregular for personal or family reasons. Nearly 500 children were enrolled as controls and of these only 394 were available for continuous observations. The trials in Madras City included all the 3 kinds of milk under study, whereas skim milk alone was tried in Uthukottai Block area. The study comprised also of simultaneous dietary and nutritional assessments, and a final evaluation of results. The diet surveys, in the families have revealed the picture of a diet low in all essential ingredients, expecially of milk and nutritional assessments have shown the signs of specific deficiencies of Protein, fats Vitamin A, Vitamin B2 and Calcium among a good proportion of the children. Skin signs, oral signs and eye signs have been more obvious. The daily feeding of 8 oz. of milk has shown improvements in all the clinical manifestations of mal-nutrition, as compared to the control children.

The increases observed in weights and heights of children fed on skim milk, 'Toned' milk and buffalo's milk, have been compared statistically with those observed as controls. The increases in heights have been no more than $\frac{1}{4}''$ in most groups and therefore only the increases in weights were analysed for significance.

Conclusion

The results of study as shown above indicate that skimmed milk had figured better than controls in only 2 groups and buffalo milk better than controls in only one group, out of a total of 15 groups in each of the milk groups. The field conditions of these trials, especially, the unavoidable interruptions in the working of the schools and the not too regular attendance of children at milk feeding have not served fully the purposes of a continuous and controlled experiment to enable strict comparisons. Thus it may be stated that under the conditions of these trials it has not been possible to establish the relative merits of the three kinds of milk.

In conclusion the department desires to place on record the valuable co-operation received from the Department of Animal Husbandry, and the Madras Corporation, in enabling the successful prosecution of the scheme and to the UNICEF and the F.A.O. for their munificent donation of ample milk powder and funds which made this improtant field trial possible and profitable.

STATEMENT NO. II

Nutritional assessment of milk-fed School Children in Madras City, according to feeding days.

		Skimmed milk (Corporation Elementary School, Pycrofts Road, Madras)										Toned milk (Corporation Elementary School Corporation Central School & Corpn. High School, Saidapet)																			
		1-50 days		51-100 days		101-150 days		151 & above days		Total		1-50 days		51-100 days		101-150 days		151 & above days		Total		1-50 days		51-100 days		101-150 days		151 & above days		Total	
		B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
General Appearance—																															
Poor	I	..	1	..	7	10	37	35	75	45	120	4	18	7	10	20	40	45	49	76	117	1	3	6	5	20	15	50	52	77	75
	F	..	..	..	3	4	6	11	22	15	31	3	7	2	6	3	16	22	24	30	30	..	3	6	3	14	9	33	36	53	51
Fair	I	..	2	8	5	37	30	120	68	165	105	53	35	25	17	108	67	116	120	346	239	9	5	7	2	50	29	131	54	197	90
	F	..	3	8	9	43	54	143	113	194	179	45	46	30	21	118	84	176	145	369	296	10	5	7	3	56	35	148	69	221	112
Good	I	1	..	1	..	6	..	24	..	32	..	24	1	13	..	75	5	32	13	144	19	..	1	..	..	4	..	11	..	15	1
	F	1	..	1	..	6	7	25	8	33	15	33	1	13	..	82	12	39	13	167	26	..	1	..	1	4	..	11	1	15	3
Eye—																															
Xerosis	I	..	..	1	4	9	14	26	25	36	43	5	3	4	..	18	11	30	13	57	27	5	..	6	1	20	8	55	9	86	18
	F	..	..	..	1	1	..	5	1	6	2	..	1	3	..	2	3	8	6	13	10	1	..	1	..	4	3	10	1	16	4
Bitot's spot	I	..	..	1	3	1	3	4	5	6	11	4	1	4	..	4	1	10	..	22	2	2	1	..	1	3	5	12	10	17	17
	F	..	..	1	2	..	..	2	1	3	3	3	..	3	..	..	1	9	..	15	1	1	..	..	..	3	..	5	..	9	..
Kerotamalacia	I	..	..	..	1	2	4	10	15	12	20	..	1	..	..	4	1	8	4	12	6	..	2	5	..	13	5	21	6	29	13
	F	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	2

STATEMENT NO. II—*contd.*

Nutritional assessment of milk-fed School Children in Madras City, according to feeding days.

		Skimmed milk (Corporation Elementary School, Pycrofts Road, Madras)										Toned milk (Corporation Elementary School Corporation Central School & Corpn. High School, Saidapet)																			
		1-50 days		51-100 days		101-150 days		151 & above days		Total		1-50 days		51-100 days		101-150 days		151 & above days		Total		1-50 days		51-100 days		101-150 days		151 & above days		Total	
		B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G	B	G
Mouth—																															
Angularstomatitis	I	..	..	..	2	10	11	25	28	34	41	5	3	4	..	30	10	36	18	75	31	3	2	4	..	18	2	47	23	72	27
	F	..	..	..	..	1	1	..	..	1	1	..	..	1	..	..	..	..	1	1	1	..	..	..	1	..	..	..	..	..	1
Glossitis	I	..	..	..	..	..	4	1	3	1	7	1	..	3	..	..	4	2	9	6	13	..	1	..	..	..	..	2	3	2	4
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Scurvy	I	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	F	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Skin—																															
Phryonoderma	I	..	..	..	..	..	..	..	1	..	1	..	..	..	..	4	..	3	2	7	2	1	1	..	..	..	..	1	..	2	..
	F	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Dry skin	I	..	1	1	4	11	21	34	51	46	77	13	5	9	4	45	20	50	40	117	69	..	1	4	..	14	13	48	28	66	42
	F	..	..	..	2	..	2	4	5	4	9	1	..	2	..	4	1	7	5	14	6	..	..	..	..	1	2	2	1	3	3
Rickets	I	..	..	..	1	2	4	13	12	15	17	7	4	5	3	23	13	27	23	62	43	42	..	3	..	7	2	17	7	29	9
	F	..	..	..	1	3	3	11	5	14	9	5	3	3	3	20	9	25	13	53	28	1	..	1	..	5	1	14	3	21	4

I=Initial F=Final B=Boys G=Girls.

STATEMENT NO. III

Nutritional Assessment—Madras City

Children fed over 100 days.

	Skimmed Milk (Corporation Elementary School, Pycrofts Road, Madras)			Toned Milk (Corporation Elementary School, Corporation Central School, and Corporation High School, Saidapet, Madras)			Buffalo's Milk (Corporation Elementary School, Lloyds Road, Madras)			Controls (Corporation Elementary School, Triplicane, Madras)		
	Number with signs	Number improved	Percentage	Number with signs	Number improved	Percentage	Number with signs	Number improved	Percentage	Number with signs	Number improved	Percentage
Eye—												
Xerosis .	74	67	88	72	53	73	92	74	80	57	35	61
Bittot's spot	13	10	77	15	5	33	30	22	73	14	4	28
Kerotemalacis . .	31	30	97	17	17	100	45	43	96	4	4	100
Mouth—												
Angular Stomatitis .	74	72	97	94	93	99	90	90	100	56	39	69
Glossitis .	8	8	100	15	15	100	5	5	100	1	..	..
Skin—												
Phryonoderma . .	1	..	..	9	9	100	1	1	..	..	..	..
Dry Skin .	117	106	90	155	138	89	103	97	94	71	18	25
Rickets .	31	9	29	86	19	22	33	10	30	25	1	4

STATEMENT NO. VII

Diet Survey

(In the Families of milk fed School Children)

Place surveyed :	Madras City (Around Corporation Elementary School, Lloyds Road, Madras).			Saidapet (Around Corporation Elementary Schools, Saidapet. Madras).		
Number of families :	5	20	5	12	17	1
Period of Survey :	March '59	March '59	March '59	April '59	April '59	April '59
Total consumption unit per week :	125.93	688.34	251.8	400.91	658.62	79.8

	Average monthly income of families.					
Name of food stuffs .	Below Rs. 50	Rs. 50—100	Above Rs. 50	Below Rs. 50	Rs. 50—100	Above Rs. 100
	Average consumption per consumption unit in ounces per day.			Average consumption per consumption unit in ounces per day.		
Cereals . . .	13.74	12.48	13.66	15.40	12.88	15.16
Pulses . . .	0.74	1.05	1.44	0.84	0.98	1.15
Leafy vegetables .	0.20	0.44	0.77	0.53	0.38	0.19
Non-leafy vegetables .	1.06	0.92	1.18	1.21	1.26	1.52
Roots and tubers .	0.31	0.75	0.85	0.89	0.89	0.55
Milk . . .	0.15	1.02	3.56	0.42	0.73	1.05
Milk products . .	0.15	0.22	0.11	0.63	0.52	0.20
Fats and oils . .	0.14	0.26	0.79	0.26	0.40	0.40
Meat/fish/eggs . .	0.26	0.44	1.08	0.55	0.42	0.78
Condiments . .	0.35	0.92	1.29	1.10	0.96	0.69
Fruits . . .	0.48	0.45	0.55	0.56	0.30	0.60
Sugar and Jaggery .	..	0.12	0.92	0.20	0.60	0.55
Nuts . . .	0.03	0.10	0.34	0.05	0.08	0.12
Other foodstuffs .	0.48	0.78	0.78	1.27	2.02	1.59
Calorie value . .	1554.3	1811.1	2142.7	1728.3	1803.8	2009.7

STATEMENT NO. X

Increase in average weights among boys in schools in Madras City.

Age Group	Skimmed Milk			Toned Milk			Buffalo's Milk			Control group		
	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.
6—7 . .	16	3	2	8	2	10	19	3	4	8	3	5
7—8 . .	37	4	1	41	2	10	49	3	10	38	3	12
8—9 . .	45	5	6	46	2	15	67	4	1	43	3	12
9—10 . .	32	4	1	47	3	14	37	4	10	44	4	5
10—11 . .	38	5	5*	68	3	12	28	4	6	61	4	4
11—12 . .	31	5	3*	66	3	1	31	4	12	36	3	13
12—13 . .	20	5	3	71	4	7	19	4	13	25	4	14
13—14 . .	11	5	4	56	4	12	13	4	8	20	5	5
14—15 . .	2	4	13	37	6	9	4	6	5	10	5	6
TOTAL .	232			440			267			285		

*Statistically significant as compared to the control groups.

STATEMENT NO. XI

Increase in average weight among girls in schools in Madras City.

Age Group	Skimmed Milk			Toned Milk			Buffalo's Milk			Control group		
	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.	No.	Increase in average weight lbs.	ozs.
6 and 7 .	3	3	11	8	9	10	18	3	8	8	3	10
7 and 8 .	9	3	5	41	3	7	34	3	6	24	3	5
8 and 9 .	34	4	2	45	4	2	28	4	5*	18	3	4
9 and 10 .	29	4	8	54	3	15	17	4	12	34	3	5
10 and 11 .	36	4	9	37	3	1*	25	4	15	23	4	7
11 and 12 .	23	5	0	36	4	11	14	6	1	10	4	8
12 and 13 .	13	6	2	38	5	6	9	6	13	2	6	5
13 and 14 .	9	5	4	23	5	8	3	8	15			
14 and 15 .	4	6	4	10	7	11		7	6			
TOTAL .	210			292			150			119		

*Statistically signifıcent as compared with the control group.

STATEMENT NO. XII

Increase in average height in inches among boys.

Age Group	Skimmed Milk		Toned Milk		Buffalo's Milk		Control group	
	No.	Average increase in height	No.	Average increase in height	No.	Average increase in height	No.	Average increase in height
6 and 7 . .	16	1.5*	8	1.8	19	2.1	8	1.8
7 and 8 . .	37	1.6	41	1.7	49	2.0	38	1.9
8 and 9 . .	45	1.9	46	1.8	67	1.9	43	1.7
9 and 10 . .	32	1.8	47	1.6	37	1.9	44	1.8
10 and 11 . .	38	1.7	68	1.6	28	1.5	61	1.6
11 and 12 . .	31	1.8	66	2.1	31	1.6	36	1.6
12 and 13 . .	20	1.9	71	1.5	19	1.4	25	1.7
13 and 14 . .	11	1.4	56	1.6	13	1.5	20	2.4
14 and 15 . .	2	1.8	37	1.8	4	1.4	10	1.8

*Average of 14 Children only.

STATEMENT NO. XIII

Increase in average height in inches among girls.

Age Groups	Skimmed Milk		Toned Milk		Buffalo's Milk		Control group	
	No.	Average increase in height	No.	Average increase in height	No.	Average increase in height	No.	Average increase in height
6 and 7 . .	13	1.9	8	1.8	18	1.9	8	2.0
7 and 8 . .	49	2.0	41	1.7	34	1.9	24	2.0
8 and 9 . .	34	2.1	45	1.8	28	1.9	18	1.8
9 and 10 . .	29	1.7	54	1.6	17	1.7	34	2.0
10 and 11 . .	36	2.1	37	1.7	24	2.0	23	1.7
11 and 12 . .	23	1.3	36	1.7	14	1.7	10	4.7
12 and 13 . .	13	2.1	38	1.9	9	1.8	2	1.7
13 and 14 . .	9	1.6	23	1.7	3	1.8		
14 and 15 . .	4	2.1	10	2.4	2	2.5		

ABSTRACT

CHILDREN'S WELFARE—*Care of pre-school children— Starting of pilot centres— Orders issued.*

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT. (P6)

G. O. Ms. No. 180, *dated the* 20th *January*, 1962.

Order

It is the directive principle of State policy embodied in the Constitution that the State should endeavour to provide free and compulsory education for all children until they complete the age of fourteen years. In accordance with this principle the State Government have formulated a programme of compulsory primary education for all children of the age group, six to eleven years, laid down organisation frame-work and made adequate financial provision, so as to ensure the successful implementation of this programme by the end of the Third Five Year Plan period. Under the Madras Panchayats Act, 1958 the statutory responsibility of formulating and implementing Five Year Programme of development of elementary education is entrusted to the Panchayat Unions that have been or are being constituted in the entire area of the State except the area covered by Municipalities, Cantonment and Townships.

2. The object of providing compulsory primary education to all children is to ensure that they will receive the basic, minimum education which is necessary to equip them for the diverse and varying occupations of later years and which will enable them to grow into active and useful citizens. It is at the same time, recognised that the need for imparting pre-primary training to children in the formation of correct habits of mind and body, which will constitute the base for formal education at the primary level, is as fundamental as the provision of primary education itself. The State Government have been examining how best to provide pre-primary training to all children of the State. They consider that the scheme drawn up for this purpose should integrate the care of the pre-school children with the provision of Maternity and Children Welfare and Family Planning services at the village level. In order to provide these facilities at the village level in a statisfactory manner, the services of proper, trained women village workers are required and these women workers should be in-charge of women and children welfare activities as a whole in the village. The proper selection, sound training and full-time employment of these women workers will therefore form an important part of the scheme. The Government recognise that such a scheme should be implemented through the set up of Panchayat Unions and Panchayats and should form integral part of educational and welfare services provided by them. Under Section 65(c) of the Madras Panchayats Act, 1958 a duty is cast on the Panchayat Unions to make reasonable provision, within limits of their own funds, in respect of the requirements relating to "the establishment and maintenance of Maternity and Child Welfare Centres including maintenance of Thayis Services and offering advice and assistance to mothers in family planning."

3. Taking into consideration the above factors the Government have ormulated a detailed scheme for the care of pre-school children, which is contained in the Annexture to this Order. Government direct that the

scheme be implemented as a pilot project in 500 (five hundred) pre-school centres to be started in 500 (five hundred) panchayats selected from all development districts of the State with effect from 1962-63. The Government also direct that the selection of five hundred panchayats for implementing the scheme be done in consultation with the District Development Councils in such a manner that :

(a) there is at least one Development Block in every development district where the scheme will be implemented, and

(b) all the panchayats in the Block are covered by the scheme.

4. It will be seen from the detailed instructions given in the Annexure that the salient feature of the scheme is the imparting of necessary initial training to adequate number of Mukhyasevikas who will, in turn give training to the Thayis and other women workers responsible for the running of the pre-school centres. The Government direct the Director of Women's Welfare to select not more than thirty suitable Mukhyasevikas and to arrange to impart necessary training to them for a period of not less than six months with the help and co-operation of recognised voluntary institutions in the Madras City or in the Districts. During the period of training the Mukhyasevikas will be treated as on duty and they will be elegible to draw their usual salary and allowances. They will be elegible to draw Travelling Allowance and Daily Allowance admissible to them under the rules for journeys performed by them from their places of working to the place or places where training will be imparted to them, and back. They will also be elegible for training allowance of Rs. 75 (Rupees seventy-five only) per mensem during their training pericd. They will not be elegible to draw daily allowance during the training period.

5. In every Block where the scheme is to be implemented the Government direct that the Women's Welfare Committee of the concerned Panchayat Union, assisted by the District Women's Welfare Officer be responsible for the selection of the required number of trained Thayis or other suitable persons who will run the pre-school centres, in accordance with the instructions contained in the Annexure. The persons so selected will be given training for a period of three months at the Block headquarters by the Mukhyasevika, specially trained for this purpose. The Panchayat Union Commissioner and the concerned District Women's Welfare Officers will be jointly responsible for the successful conduct of the training camps. The Government direct the Director of Women's Welfare to issue detailed instructions regarding the progarmme and syllabus to be followed in the training camps.

6. The time schedule for the various stages in the implementation of the scheme is given in paragraph 8 of the Annexure. The Government direc that the time schedule should be adhered to strictly, so as to ensure that the five hundred pre-school centres start functioning by the 14th November, 1962.

7. Sanction is accorded for the incurring of expenditure on the following :—

(i) Expenditure on the training allowance of Rs. 75 (Rupees seventy-five only) per mensem per Mukhyasevika deputed to undergo training for a period of six months.

(ii) Expenditure on the provision of free boarding for five hudred persons selected to run pre-school centres during the period of their training at the Block headquarters at a rate not exceeding Rs. 25 (Rupees twenty-five only) per mensem per person for a period of three months.

(iii) Expenditure on the provision of accommodation at the Block headquarters in twenty-one Blocks where the training will be conducted, at the rate not exceeding Rs. 1,000 (Rupees one thousand only) per Block.

(iv) Expenditure on stipends to the five hundred trainees at the rate of Rs. 15 (Rupees fifteen only) per mensem per trainee for a period of three months.

(v) Expenditure on the purchase of equipment for each pre-school centre at an amount not exceeding Rs. 300 (Rupees three hundred only) per centre. This will be a non-recurring expenditure.

(vi) Expenditure on an organisational grant to the Women's Welfare Committee of each of the panchayats where the pre-school centre will be run, at the rate of Rs. 5 (Rupees five only) per mensem.

(vii) Expenditure on honorarium to each pre-school teacher at the rate of Rs. 20 (Rupees twenty only) per teacher per mensem.

(viii) Contingent expenditure of Rs. 7 (Rupees seven only) per mensem per pre-school centre.

The expenditure will be debited to "47-Miscellaneous Departments—J. Miscellaneous—a. Department of Women's Welfare—II—Development Schemes—Schemes included in the Third Five Year Plan".

8. This order issues with the concurrence of Finance Department—*vide* their U. O. Note No. 3499A/Fin (All. II)/ 62-1, dated 8-1-62.

(By order of the Governor).

R. A. GOPALASWAMI,
Chief Secretary to Government.

ANNEXURE

Detailed instructions for the implementation of the scheme of care of pre-school children.

Introductory

1.1. The pre-school child is defined as the child between 2 and 5 years of age. On this basis the total number of pre-school children in the State is estimated to be 8 to 9 per cent of the total population of 336 lakhs (1961 census) or 27 lakhs. This works out to an average of 100 pre-school children in the area covered by an elementary school, 150 pre-school children in the area covered by revenue village and nearly 200 pre-school children in the area covered by a village panchayat.

1.2. Under the scheme one pre-school centre should be located in a village panchayat area to cater to about 50 children. In all 500 pre-school centres will be established in all the development districts of the State during 1962-63. There should be at least one Block in each development district where the scheme will be implemented. In every block which is selected, pre-school centres should be started in all panchayats at the rate of one centre per panchayat. The Government will consult the District Development Council of all rural districts before finalising the selection of Blocks and panchayats where the pre-school centres will be started. This matter must be taken up immediately and selection of 500 panchayats should be completed before the end of February, 1962.

Programme to be followed

2.1. The programme to be followed in the pre-school centres will be an adaptation and simplification of the programme of care in Balwadis which consists essentially of simple indoor and out-door activities (both directed and spontaneous), inculcation of hygienic habits, simple gardening, physical co-ordination of limbs and correct posture, and work (paper work, mat weaving, clay modelling etc.), artistic activities (dancing, singing in chorus, dramatics, drawing and painting), sight seeing, articulation (correct enunciation, fables dialogues), learning alphabets counting and elementary rules of socal etiquette and behaviour. The Director of Women's Welfare in consultation with the State Social Welfare Board should work out detailed programme to be followed in the pre-school centres and communicate it to Panchayat Unions and Panchayats where the scheme is to be implemented for being transmitted to the pre-school teachers.

2.2. In addition to these activities the person in charge of the pre-school centres will be responsible for the preparation and distribution of wheat and other commodities obtained as aid for the programme. Certain experiments on a pilot scale are being conducted in the form in which wheat preparations can be distributed to pre-school children. It should also be possible to strengthen the wheat preparations with Multi-purpose Food now being manufactured at Coimbatore in a plant with a capacity of 5 tons per day and for which there is a proposal to have 10 tons plant with UNICEF assistance. The Director of Women's Welfare should work out a practicable and nutritively sound scheme in this regard and submit it to the Government based on the results of the pilot experiments. The scheme as approved will be communicated to all pre-school centres for implementation.

Directive and Supervision

3.1. At Government level, the programme will be administered by the Rural Development and Local Administration Department. It will be executed through the Madras State Social Welfare Board and the Director of Women's Welfare.

3.2 At the Block level, an *ad hoc* Committee has been constituted for each Panchayat Union under the orders relating to the re-organisation and integration of Women's Welfare Programme. This Committee, which is known as the Women's Welfare Committee, consists of :—

(i) The Chairman of the Panchayat Union Council (as a Member);
(ii) The women members of the Panchayat Union;
(iii) Five members from among the women members of the Panchayats in the Block;
(iv) Two local voluntary workers co-opted by the Committee as per the recommendations of the State Board ; and
(v) Commissioner of the Panchayat Union.

The Women's Welfare Committee so formed will be in charge of the supervision and implementation of the programme at the Block level.

3.3. It has also been ordered that Women's Welfare Committee should be formed for each panchayat with the women member of the Panchayat as the Chairman. This Committee will supervise the implementation of the programme at the village level. An organisational grant of Rs. 5 per mensem will be made available to the Village Committee to be given as an honorarium to a suitable person in the panchayat who will act as Secretary to the Committee, maintain accounts etc.

Person to be in Actual Charge of the Programme in the Village and her Duties

4.1. At the panchayat level the programme will be in charge of a selected, trained thayi or other suitable person. Madras State would be having about 8,000 trained thayis at the end of the Third Five Year Plan. The thayi will be a multi-purpose functionary in charge of Family Planning and Maternity and Child Welfare. She will specifically be in charge of the following work :—

(i) She will be responsible for collecting the pre-school children from their homes, bringing them to the school, taking care of them during their stay there and returning them to their homes ;

(ii) She will be in charge of preparation and distribution of wheat and other preparations to the expectant and nursing mothers, infants in arms and the pre-school children ;

(iii) She will be of assistance to the maternity assistants during her visits to the village by way of gathering the local women, distributing Family Planning literature etc.

Remuneration to the Thayi

5. Trained thayi or other suitable person who is selected for discharging the above functions will be paid a fixed lump sum honorarium of Rs. 20 per month.

Selection and Training of the Thayi in Pre-school Care

6.1. The trained thayi will be selected by the Panchayat Union Women's Welfare Committee assisted by the District Women's Welfare Officer. If a suitable trained thayi in the village is not available or is for some reason considered unsuitable, the Committee may select some other suitable person. In such a case, a minimum educational qualification of VII Standard (integrated) completed will be insisted upon.

6.2. The trained thayi or other suitable person will be given training in the care of the pre-school child for a period of three months. This training will be organised at the Headquarters of every Block where the scheme is to be implemented. The Panchayat Union Commissioner and the District Women Welfare Officer should be jointly responsible for the successful conduct of the camp. The Mukhyasevika who will be given necessary training will be immediately in charge of the camp, hold classes, arrange talks etc., The Director of Women's Welfare should formulate a detailed programme and syllabus for the conduct of the camps and communicate it to the officer conducting camps.

6.3. The training camp may be held in the Panchayat Union Offices or at the school buildings at the Headquarters which may be available for the purpose or in any suitable public building. If no suitable building is available a temporary shed may be put up for the accommodation of the trainees as well as for holding classes. Wherever a temporary structure is put up an expenditure not exceeding Rs. 1,000 (Rupees one thousand only) per training camp may be incurred.

6.4. During the period of training, the trainees will be given free food and lodging in addition to stipend of Rs. 15 (Rupees fifteen only) per month. The services of Matron may be engaged temporarily during the period of camp and an expendiure on a salary of Rs. 90 (Rupees ninety only) per mensem in all may be incurred for a period of three months in every camp.

6.5. A bond will be taken from each trainee to the effect that she will serve the Panchayat Union as a pre-school teacher for a specified number of years after she completes her training.

Training of Mukhyasevikas

7.1. The Director of Women's Welfare should select not more than 30 suitable Mukhyasevikas from the districts with special aptitude for this work and arrange to impart them necessary training in the case of pre-school children run in the Madras City or in the districts with the help and assistance of recognised voluntary institutions. The training should be for a period of six months. The Director of Women's Welfare will be personally in charge of this training.

7.2. During the period of training the Mukhyasevikas will be eligible to draw their usual salary nad allowances. They will be eligible to draw travelling allowance and daily allowance admissible to them under the rules for journeys performed by them from their places of working to the place or places where the training will be conducted, and back. In addition they will be paid a training allowance of Rs. 75 (Rupees Seventy-five only) per mensem during the period of training.

7.3. On completion of the training the Director of Women's Welfare should post them in Blocks where the scheme is to be implemented. The trained Mukhyasevikas should immediately arrange to conduct training camps for the persons selected to run village centres. They will be in immediate charge of the Block level training camps. They should closely follow the detailed instructions that will be issued by the Director of Women's Welfare regarding programme, syllabus and conduct of training camps.

Schedule for the Implementation of the Programme

8. The following schedule of dates is laid down for the implementation of the programme :

1-2-1962	30 Mukhyasevikas to be deputed for training by the Director of Women's Welfare in voluntary institutions.
1-8-1962	The Mukhyasevikas complete their training.
10-8-1962	The Mukhyasevikas start the Block level training camps.
10-11-1962	500 thayis or other selected persons complete their training.
14-11-1962	The 500 pre-school centres will be inaugurated.

Children's Day

The dates mentioned should be strictly adhered to .

Estimate of Costs

9.1. The first rquirement is suitable accommodation. The pre-school primary school must necessarily be located within two to four furlongs of the village habitations as it is necessary to be within walking distance of the children. A hall with a fairly spacious varandah having an open space as its appurtenant would be the requirement. In many of the villages it would be possible to find suitable accommodation either in the elementary schools or in a mandapam or otherwise. It will in any case be the responsibility of the village community assisted by the local committee to secure suitable accommodation. For this reason no provision has been made for the purpose.

9.2. The cost of equipment for every pre-school centre is estimated at Rs. 300/-. This will include the cost of utensils for cooking the wheat preparations as well as mugs and plates for consuming it. The State Social Welfare Board should standardize the list of equipment necessary and communicate it to all the Panchayat Unions. They should also explore the possibility of manufacturing standardized equipments economically in bulk in consultation with the Director of Industries.

9.3. Recurring expenditure per pre-school will be as follows :—

Organisation grant for the Women's Welfare Committee.	Rs. 5 (Rupees five only) per mensem.
Honorarium to pre-school teacher	Rs. 20 (Rupees twenty only) per mensem.
Contingent expenditure :	Rs. 7 (Rupes seven only) per mensem.
Total	Rs. 32 (Rupees thirty-two only) per mensem.

9.4. Detailed instructions on the accounting procedure to be followed will be issued by the Rural Development and Local Administration (Accounts Department.

True copy.

N. P. SADASIVAM,
Superintendent.

GOVERNMENT OF MADRAS

ABSTRACT

Nutrition—Expanded Nutrition Programme—Approved—Orders issued

RURAL DEVELOPMENT AND LOCAL ADMINISTRATION DEPARTMENT

G. O. Ms. No. 328 *dated the* 10*th February,* 1962.

Read the following :

From the Ministry of Health, letter No. F. 18-6/61 PH, dated the 15th January, 1962.

Order

The Government have had under consideration the question of implementing an Expanded Nutrition Programme with the assistance of UNICEF in this State in select blocks with a view to demonstrate to and to encourage village communities to adopt such practices in production and consumption of protective foods and to stimulate self help in this regard. The Government have accordingly formulated a plan of operation for an Expanded Nutrition Programme in this State. The plan of operation received from the UNICEF was discussed with the Heads of Departments concerned and has since been finalised. The Plan of operation as finalised is appended to this order.

2. The Government direct that the programme be implemented in the seven Rural Extension Training Centres of Krishnagiri, Bhavanisagar, S. V. Nagaram, T. Kallupatti, Aduthurai, Koilpatti and Pattukottai and in the three Home Science Wings connected with S. V. Nagaram, Kallupatti and Bhavanisagar and in the seven blocks of Krishnagiri, Bhavanisagar, Arni, Kallupatti, Tiruvidamarudur, Pattukottai and Koilpatti attached to the training centres.

3. The Government also direct that the Additional Development Commissioner be responsible for the implementation of the programme and the coordination of the various activities. He shall be assisted by the Assistant Development Commissioner (Training) and the Director of Women's Welfare. The Government direct that a working Committee be constituted at State level to guide the implementation of the Programme with the following members :—

Chairman : Additional Development Commissioner.

Members :

1. Secretary to Government, Education and Public Health Department.
2. Director of Agriculture, Madras.
3. Director of Animal Husbandry, Madras.
4. Director of Fisheries, Madras.
5. Director of Public Instruction, Madras.
6. Director of Public Health, Madras.
7. Director of Women's Welfare, Madras.
8. Under Secretary to Government, Finance Department.
9. Assistant Development Commissioner (Training), Madras.

The Deputy Secretary to Government (Programme), Rural Development and Local Administration Department shall be the Secretary and a member of the Committee.

4. The Committee shall meet once a month to assess the progress of the work. The Committee may undertake such tours as may be found necessary for assessing the progress of the work. The Headquarters of the Committee will be Madras.

5. The Panchayats shall be responsible for operating the programme at village level. The Panchayat Union shall be responsible for carrying out the programme at Block level. In order to have coordination between Panchayat Union, the Project staff and the Training Centres, the Government direct that a Coordinating Committee shall be constituted at the Block level with the following members :—

1. Panchayat Union Chairman.
2. Panchayat Union Commissioner.
3. Principal of the Rural Extension Training Centre concerned.

It shall be open to the Coordinating Committee to coopt any other person who is a member of the Panchayat within the block, of the staff of the block or of the Training Centre as a member of the Committee, as the programme develops.

6. The expenditure on travelling allowances and daily allowance of the members of the Working Committee should be debited to the head of account to which pay and allowances of the officers are debited.

7. Orders sanctioning the expenditure for implementing the various items of the programme and the staff to be employed under the Programme will issue separately.

8. This order issues with the concurrence of Finance Department—*vide* their U.O. No. 2944-E1/62-1, dated the 10th February, 1962.

(BY ORDER OF THE GOVERNOR)

G. VENKATACHALAPATHY,
Additional Secretary to Government.

APPENDIX

Plan of Operations for an Applied Nutrition and Agricultural Extension Training Programme in Madras State.

The Government of India, hereinafter referred to as "the Central Government", the Food and Agriculture Organisation of the United Nations, hereinafter referred to as "FAO", World Health Organisation, hereinafter referred to as "WHO", and the United Nations Children's Fund, hereinafter referred to as "UNICEF".

BEING desirous of obtaining mutual agreement concerning an Expanded Nutrition Programme in the State of Madras, particularly with reference to the purpose of the project and the responsibilities which shall be assumed by each of the parties.

DECLARING that these responsibilities will be fulfilled in a spirit of friendly cooperation,

HAVE AGREED AS FOLLOWS :

ARTICLE I

Basis of Relationship

The Basic Agreement concluded between the Central Government and WHO on 16th July 1952, the Basic Agreement concluded between the Central Government and UNICEF on 10th May 1949, and the Revised Standard Agreement concluded between the Central Government and the United Nations Technical Assistance Board on 31st August 1956, in so far as it relates to the FAO and the WHO, provide the basis for relationships between the Central Government and the co-operating Agencies in this project, and the Articles of this Plan of Operations are to be interpreted in the light of the respective Agreements.

ARTICLE II

Objectives

The following are the Objectives for this Plan :

1. General

(a) To upgrade and expand the training of the village level workers in human nutrition by strengthening, where necessary, the existing training centres, and by operating a viable nutrition programme in the attached blocks, the purpose being to provide experience for the trainees and refresher courses for graduates;

(b) To demonstrate and to encourage village communities to adopt sound practices in production and consumption of protective foods, and to stimulate, through a programme of nutrition education, self-help in this regard.

2. Specific

(a) To assist in improving teaching facilities, and in providing adequately trained staff in the 7 rural training centres and the 3 home science wings in the State;

(b) To develop practical field training for this programme in the attached blocks ;

(c) To produce educational materials and to organise teaching and training programme for village leaders ;

(d) To mobilize the primary producers in particular, and the total block community in general, for participation in a programme which will include :

- (i) Increased production of nutritionally valuable foods such as eggs, poultry, fish, vegetables, including legumes, and fruit.
- (ii) Increased production of fodder and improved animal husbandry practices in order to increase milk supply.
- (iii) Improvement of the nutritional status of the communities by means of an educational programme directed towards the inclusion of more protective foods in the normal diet.
- (iv) Utilisation of part of the increased output of protective foods in feeding programmes for pregnant and nursing mothers and pre-school children.
- (v) Training and orientation of personnel required for the implementation and maintenance of this project.

ARTICLE III

Plan of Action

The Central Government through the Government of Madras (hereinafter called the "State Government"), has the following plan of action for the attainment of the Objectives set forth under Article II above.

A. Area of Operation

(1) This plan will be carried out in the seven rural extension training centres of Krishnagiri, Bhavanisagar, S. V. Nagaram, T. Kallupatti, Aduthirai, Pattukottai, and Koilpatti ; in the three home science wings connected with S. V. Nagaram, Kallupatti and Bhavanisagar; and in the seven blocks of Krishnagiri, Bhavanisagar, Arni, Kallupatti, Tiruvidamarudur, Pattukottai, and Koilpatti attached to the training centres and in which the centres are situated. The training centres have an establishment of 77 staff members and 750 students, and the home science wings have 12 staff members and 120 students. The male students are provided with a two-year course: the women, one. The blocks have a total of 380 revenue villages with a population of 576,000 persons. Each block has its panchayat chairman and committees, a block development officer, now designated as Panchayat Union Commissioner, and his supporting staff of 7 subject matter specialists. In addition, there are 12 village level workers (10 men and 2 women) stationed in each block.

B. Project Nutrition Officer

(1) The State will appoint a Project Nutrition Officer who will give full time to this project. UNICEF will provide a stipend, if necessary, to train such a person, either in the six-month course at Calcutta or in one with equivalent standing elsewhere. His job will be to supervise and coordinate all the nutritional aspects of the programme, particularly nutrition training and food distribution programmes developed in the operational areas.

C. Training Centres

(1) The centres for male workers will seek to incorporate at least 30 hours of theory, as opposed to the existing 10 hours, and thirty hours of practice work in human nutrition. The Public Health Instructor, in each training centre, if he does not have nutrition education equivalent to the Project Nutrition officer, will be given the same stipends to be provided by UNICEF.

(2) At present Crop Husbandy (theory 200 and practical 150) provides, among other things, for training in the production of fodder, legumes, groundnuts, crop rotation and so on. Horticulture and plant protection (theory 200, practical 200) includes vegetables and fruits and all elements in their culture, and practice in all these aspects. The Animal Husbandry course includes 47 hours in the general management of cattle—feeding 14 hours; dairying 29; poultry 14 hours and fisheries 9, in theory, and about an equal time for practical work. The authorities at the centres have considerable latitude in deciding where emphasis on the content of these courses will be placed; much will depend on the needs of the practicular district where they serve. The training centres, in consultation with the Project Nutrition Officer will work out what plants are to be grown and what practices are to be followed in order that the best possible nutrition, directly and indirectly, will be provided for the people.

(3) At present the students' practical work is generally restricted to 8 or 9 nearby villages in the blocks out of a possible 40 to 80. During the first part of their course they visit these villages once a week and later on, twice. Lack of transport is one of the main reasons for this limitation. UNICEF will contribute one personnel carrier to each centre to allow for greater mobility.

This will also aid in wider observation of, and participation in, the ENP in the block. As the students, along with their instructors, move further a field in their block, their work, in so far as it involves the various facets of the ENP, will help in considerable measure to activate and extend the programme. This will need careful coordination with the panchayat and block programmes.

(4) In addition to providing each centre with one vehicle, UNICEF will supply educational aids, such as films, equipment for the production of educational materials, and other minor supplies as may be indicated and mutually agreed upon as the programme develops, and not to exceed the funds provided in the budget for this item.

D. Solid Block Programmes

(1) The programme will be operated in all the villages of each block. Attempts will be made to carry out as complete a programme as circumstances and resources will allow. Some villages will not have fish ponds, others may have no extra land available. But in each place, balanced diets will be developed from produce at hand; for example, legumes, groundnuts, and the like may have to be substituted for animal protein. In other words balanced dietary patterns, which can be adapted to any type of environmental conditions, will need to be worked outs.

E. Co-ordination

(1) Co-ordination between the Panchayat Union, the block, and the training centre is essential. To this end a committee will be set up comprised of the Panchayat Union Chairman, the Panchayat Union Commissioner (B.D.O.), and the principal of the training school. Other members of the Panchayat Committees, the Block Development Officers's Office, and the training school staff may be added or co-opted as the need of the programme indicates. The Panchayat Union will be responsible for implementing the programme in the villages. It will work through its committees (agriculture, education and women's), the village panchyat, women's and youth organisations, and various villagers who will be trained in such fields as poultry, pisciculture, and gardening. It will be assisted through technical advice, guidance, field supervision and extension by the Block technical staff and village level workers. It will also receive advice in technical matters and assistance in extension activities from the staff and students of the training centre. The details of this division of labour and responsibilities will be worked out by the co-ordinating committee.

F. Poultry

(1) Large poultry units, to serve as poultry extension centres for the districts, will be set up in each of the blocks. They will be located at block headquarters, in the training centres, or in whatever place the Government may decide upon in consultation with the co-ordinating committee. The Government will provide funds for the erection of these block units and for the supply of birds. UNICEF equipment—large incubators, feed grinders and mixers, and brooders—will be placed here. The Government will provide housing for the plant, storage for feed and the like, and staff to operate the unit.

(2) Village poultry units will be set up on the basis of 60 hens, 6 cocks for every 2000 population, or fraction thereof. The Government, through its block units, or from other sources, will supply 18,000 pullets and 1800 cocks for these village units. The construction of poultry houses will be simple, local materials being largely used, and the deep litter method will be followed. The houses will provide adequate protection from weather and predators. 75 per cent of their cost will be met by the State Government and 25 per cent by the panchayat.

(3) The Government will supply free balanced rations to feed these birds for one year. Subsequently, the panchayat will be required to continue the programme on its own resources; by that time the established units will be producing considerable revenue.

(4) Poultry units with 150-egg incubators and brooders will be set up at the headquarters of the village-level workers, primarily for the purpose of supplying stock to villagers, and will be run by the village level worker. The villagers will be provided with day-old chicks or eggs from these centres or from the block units, at concessional rates. Any villager who wishes to establish a flock of 20 or more birds will be given one week's training free.

(5) In order that the flocks of the village unit may have adquate attention, two villagers—possibely the gram-sahayaks—from each unit will receive two-weeks' training, and will receive an honorarium of Rs. 15 a month for the first year. As duteis required to handle this work are right, this personne may also be used to assist in fish rearing and in the feeding programmes.

(6) The technical staff, as delegated by the coordinating committee will be fully responsible for providing technical guidance to the panchayat and poultry raisers for the care and efficient management of the birds.

(7) The panchayats will be responsible for providing 5000 eggs free for all pregnant and nursing mothers and pre-school children in every 2000 population, or fraction thereof. This estimate is made on the basis of one egg per adult and one-half egg per child each week for six months, and that 10 per cent of the population (200) are pre-school children and 5 per cent (100) are nursing and pregnant mothers. This would provide approximately 1,500,000 free eggs for feeding programmes each year.

G. Pisciculture

(1) All available water ponds, perennial or seasonal, will be stocked as needed. The latter will be furnished with faster-growing fingerlings as recommended and supplied by the fisheries department. Free fingerlings will be donated by the department to the panchyats for the three-year programme.

(2) UNICEF will provide nylon yarn and other equipment as detailed in the section on commitments. The yarn will be supplied free to the panchayat, and will be woven into nets at the panchyat expense. In addition, any other necessary equipment such as oxygen cylinders, weedicides and soil analysis apparatus, will be used by the department to assist the panchayats in their fish culture.

(3) In return, the panchyat will be required to supply 50 pregnant and nursing mothers and 100 pre-school children, in each 1000 population, with 1000 pounds of fish a year. Each adult will receive 6 ounces and each

child 3 ounces, or a total of 40 pounds per week, for all the beneficiaries. Time intervals and feeding quantities will vary with the availability of fish, but the total quantity will be 1000 pounds.

(4) UNICEF will provide stipends to train two villagers out of every 2000 inhabitants in short courses on pisciculture. These persons will be selected by the panchayat and will be responsible for the care and protection of the ponds. The panchayat will be obliged to remunerate them as mutually agreed.

H. School Gardens, Orchards, Fodder and Legume Production

(1) *School Gardens.*—The majority of schools do not possess land. The panchayat, if possible, shall provide a school garden area of upto one acre per 2000 population. In those and these places where schools already own land, school gardens will be started, if not now in operation. These gardens will be planned to produce vegetables and fruits of high nutritive value. It will be the responsibility of the Block Agriculture Extension Officer, in consultation with the Project Nutrition Officer and in cooperation with the schools, to develop these programmes. Such programmes will involve, where possible, the youth clubs. The produce from these gardens will be used in the school feeding programmes.

(2) *Horticulture.*—If necessary for school gardens, school teachers (one per thousand inhabitants) will receive a short period of training in horticulture. A leader from the youth club will also be elegible for training.

(3) *Fodder and Legumes.*—Whenever possible, the panchayat will make available at least 5 acres of land for production of fodder, legumes and vegetables. All government land has now been vested in the panchayat. This land will be irrigated, if at all possible. UNICEF will supply pumps and piping ; the State Government will dig wells, install and house the pumps. It is estimated that 200 such wells will be constructed and equipped.

(4) The use of this land will be decided by the panchayat in consultation with the agriculture extension officer, nutrition officer and animal husbandry staff. The aim is to provide:

(a) at least one acre of vegetable and fruit produce for school lunches if there is no separate school garden;

(b) more legumes for human food;

(c) improved fodder production for milch cows.

This land will be used to demonstrate the best crop rotation for production of top nutritional quality food crops, employing the best methods, plants, seeds and grasses available. Such produce as is not used for school feeding programmes will be utilised as much as possible in village feeding programme for nursing and pregnant mothers.

(5) The Department of Animal Husbandry will intensify its extension programme in these areas for the development of better breeds of milch cows This will be achieved by upgrading and selective breeding, and making the improved stock available to villagers through cooperatives. The fodder produced will be sold at market rates and the panchayats will encourage the villagers to grow more fodder and legumes on their own.

(6) The State Government will dig wells, furnish operating expenses for pumps, provide improved cattle, seed and plant materials. The panchayat will make land available and cultivate it. UNICEF will make provision of pumps and piping for wells, fertilisers, insecticides and garden tools. UNICEF will also supply stipends for the training of two persons from each village for the above programme. As the programme progresses, these people may be given an honorarium proportionate to the time required to operate the fodder, legume and garden projects, if the workload warrants. This will be at the discretion of the panchayat in consultation with the co-ordinating committee.

I. Staffing

(1) *The Co-ordinating Committee* will examine the staffing needs of the programme and plan for the best use of its personnel to ensure that the programme will be carried out efficiently.

(2) *The staff and students* of the training centre will be used as noted in Article III, item 'C'—"Training Centres". It will involve visits to more distant villages in the block, and close coordination with the plan being carried out by the panchayat, which should considerably strengthen both the central and the block programme. The staff will be available to provide technical advice; the students will work in both the production and feeding programmes. The Home Science Wings, in addition to their regular teaching nutrition to the female VLW's might provide the nutrition teaching and supervise the practicals in the male VLW's centres attached, and be prepared to give other nutrition assistance in the programme as it develops. Each wing will have at least one instructress who has special training in nutrition. If each staff does not have one such trained person UNICEF will provide stipends to send as many as necessary to Coimbatore for this training.

(3) *The Block Development Officers* will be responsible for active co-operation —technical advice and assistance in all phases of the programme. As this includes every village in the block and effects important production and involvement phases of the life of every village, this will be a major field of work for them.

(4) *The Panchayat Union* will be responsible for carrying out the programme. Their committees—education, agriculture and women's—will have extra working their own fields in order to plan and help carry out the field work in the villages.

(5) *The primary health and MCH centres* will assist in helping to indentify the most important nutritional deficiencies, advise on diets to meet them, take part in training programmes and help in various ways as requested by the co-ordinating committee, within their resources, both personnel and physical.

(6) *The State Government* will provide extra staff for the project. Each of the poultry extension centres to be set up will have a Veterinary Assistant Surgeon, a stockman and an upper division clerk ; two research assistants, one hydrologist, one soil chemist and seven inspectors of fisheries will be added; one Project Nutrition Officer, two audio-visual equipment operators, and drivers for all the vehicles will be provided specifically for this project. In addition, the State Government will provide further staff as the programme may demand with further development.

(7) *Government personnel* (*V.L.Ws.*).—Village level workers (10 men and 2 women) are already in place in the blocks. The Social Education Organiser, men and women, will give special attention to the programme. As noted above, this personnel will be increased as needed.

(8) The State Government, with UNICEF assistance, will train a small crops of workers for each village (1000 inhabitants) : one poultryman, two fishermen, two garden and fodder production assistants, and two women workers from the women's committees and youth organisations as available. These add up to at leasts even trained workers in each village,or approximately 500 per block, some of whom, as noted in the text, will receive an honorarium.

(9) *Village Leaders* occupy an important place in the programme. The panchayat will have the support of his elected committee in operating the programme at village level. In addition, a special effort will be made to organise women's committees where these are not already existing. These groups will be basic in every village. Further, special efforts will be made to organise junior youth clubs as widely as possible. More social education organisers will be needed to promote this work. The State Government will provide these as required, as noted in Article VII.

J. Types of Training Required

(1) Orientation courses for officers in the training centres involved, for block officers, for the panchayat union chairman and committees, and for the heads of primary health and MCH centres, will be organised. District officers and Zilla Parishad will be invited to attend. This orientation will require not more than two days, the place and time to be arranged by the working committee. (*See* Article IV—"Administration and Assignment of Responsibilities", paragraph 2.) UNICEF will provide stipends at the rate of Rs. 5 per day.

(2) Village panchayats will have special responsibilities for implementing the programme. Special orientation courses for them, not exceeding three days, will be set up by the coordinating committee. It is essential that all aspects of the programme be understood in detail by the panchayat. UNICEF will provide stipends at the rate of Rs. 3 per day.

(3) Village level workers, men and women, will be given short orientation and refresher courses lasting ten days with special emphasis on the production and consumption phases of the programme. These courses will be given in the training centres. UNICEF will provide stipends at the rate of Rs. 3 per day.

(4) *Training for village personnel :*

Poultrymen: 2 from each 2000 unit of population will be given a 10-day training course in some phases of poultry-raising. Approximately 500 persons will be trained. In addition, villagers, wishing to start flocks of their own, will receive 7 days training as noted in Article III, item 'F'—"Poultry".

Fishermen: 2 fishermen from each village of 2000 unit population will be given a 7-day course in simple practices of rearing and catching fish. Approximately 500 persons will be trained.

Horticulture and fodder production assistants : 2 from each village of 1000 inhabitants, where land can be found for school gardens and/or legume and fodder production farms, will receive training for ten days. It is estimated that not over 300 village units will be operated; thus 600 persons will be trained.

Women workers : Every village will require trained women to assist the panchayats. If the village has a women's organisation (madar sangam) the selection will be made by that body ; if not, the panchayat will select two women from each village to receive a two-week course in nutrition and feeding. 760 persons in all will be trained.

Youth organisation leaders : One person form each youth organisation will receive ten days' training on the different phases of the programme and on how youth organisations may assist. It is estimated that 200 persons will be trained.

During their training period, each of the above trainees will receive stipends of Rs. 1.50 a day from UNICEF. Most of the courses will be given at the training centres. The coordinating committee will be responsible for making all arrangements for these courses in which approximately 3000 villagers will receive the training.

K. Milk F[illegible] rogramme

(1) UNICEF has agreed to release one million pounds of milk powder immediately for this programme. The panchayats, through the women's organisations, will commence distribution of this milk to the women and children in all the villages as soon as administrative details are worked out. The milk will be prepared by the women's committee, or by the panchayat until such a committee is formed, and distributed to its beneficiaries. This will be combined with other feeding programmes as they develop.

(2) The District Health Officer will be responsible for checking on the milk supplied to ensure its safety for human consumption. Block Medical Officers, where available, and sanitarians will be responsible for carrying out the inspection.

L. Nutrition Education and Public Information

(1) In order that the programme may be firmly based, special education will be given to the villagers. Suitable educational materials for villagers covering all phases of the programme, including a general introduction to the nutrition problem, will be collected and prepared. The reasons for good nutrition practices be will emphasised, ways and means of obtaining the proper ingredients, and the best ways of utilising them. To accomplish this, suitable simple literature will be prepared, visual aids provided, such as posters, flannelgraph, flash cards, film strips and other materials procured for effective demonstrations in the various aspects of the programme. The Project Nutrition Officer will be responsible for these activities.

(2) WHO and FAO will assist in producing the technical literature, and any pertinent information that may be required. UNICEF will supply funds for the production of literature, raw films, and two visual education trailers. One of the trailers will operate throughout the programme blocks in the southern part of the State ; the other in the north. The State Government has

trained operators available for this project. The operators will travel from village to village carrying on intensive education in basic nutrition. Each operator will be responsible to each training centre for the purpose of recording technical and other information given out by the visual education trailers.

(3) The State Government will provide trained photographers to prepare slides and movies ; will help in producing literature and other aids ; will provide operators for the vans, as well as running costs ; and will give any assistance that may be found necessary to produce an effective education programme.

ARTICLE IV

Administration and Assignment of Responsibilities

(1) *The Additional Development Commissioner* will be administrativey responsible for the development of the project and the co-ordination of its various activities. The training centres are to be under his jurisdiction. He will be assisted by the Assistant Development Commissioner (Training) and Director of Women's Welfare.

(2) It is proposed to establish a *working committee* consisting of the Additional Development Commissioner as Chairman ; the Secretary to the State Government, Education and Public Health Department ; the Directors of Agriculture, Animal Husbandry, Fisheries, Public Instruction, Public Health and Women's Welfare ; the Under Secretary (Finance) and Assistant Development Commissioner (Training). The Deputy Secretary to the State Government, Rural Development and Local Administration Department, will be Secretary and a member of the Committee. It is planned to have the Committee meet once a month to assess the progress of the work.

(3) *The Co-ordinating Committee* as noted in Article III, item "E"—"Co-ordination", will have responsibility at Block level for the planning and implementing of the programme there.

(4) The panchayat has complete responsibility for operating the programme at village level. The State Government is strengthening the Directorate of Women's Welfare to facilitate active assistance and guidance in the programme.

(5) The Project Nutrition Officer will be responsible for the nutrition education programme. He will be assisted by two full time trained nutrition workers provided by the Directorate of Women's Welfare and the seven trained nutritionists in the Centres. These, in turn, will in short courses, train VLW's, teachers, panchayats, villagers and others as listed in Article III, item 'J, paragraph 5—"Training Schedule". The students of the centre will carry on some training of villagers during their practicals. The organisation of Article III, item "L"—"Nutrition Education and Public Information" will be part of the responsibility of the Project Nutrition Officer.

(6) WHO shall be represented by its Regional Office for South East Asia in carrying out all the functions, activities, rights and duties of WHO as provided in this Plan of Operations. In all matters concerning the technical assistance in the field of health, to be provided under this Plan of Operations WHO, through its Regional Office shall deal with the State Government.

ARTICLE V

Cooperation—Food and Agriculture Organisation and World Health Organisation

(1) The proposed project has the technical approval of the Food and Agriculture Organisation and the World Health Organisation. As the programme progresses, technical problems will be referred to these organisations for advice and assistance, *e.g.*, contents of training courses, and simple technical literature. The assistance of FAO Experts, under ETAP regulations, will be made available at the request of the State Government. WHO will provide technical assistance and guidance to the project at the request of the State Government through its Regional Nutrition Adviser in the first instance.

ARTICLE VI

Commitments of UNICEF

(1). UNICEF will provide technical supplies and equipment, as also financial assistance to cover the cost of stipends and travel in connection with training programme. The total UNICEF allocation for the project as a whole is estimated at $ 245,000 inclusive of freight charges. In the first instance the UNICEF contribution would come to $ 150,000. A supplementary budget will be allocated at a later date as determined by actual project implementation. The breakdown of UNICEF contribution is detailed below :

	US$	US$
A. Equipment for training Centres, 7 @ $ 500 each		3,500
B. The Block Programme		
1. Poultry		
7. Egg-Room Coolers	3,675	
7 Incubators		
2520 eggs capacity	8,100	
70 Incubators,		
150 eggs capacity	5,700	
7 Feed Grinders	2,300	
7 Feed Mixers	5,600	
7 Platform scales	525	
84 Chick brooders,		
350 birds, plus spares	3,000	
Wire Netting, 5200 ft.	500	
Veterinary pharmaceuticals	1,000	30,400
Total carried over		33,900

	US $	US $
Total brought forward		33,900
2. *Pisciculture*		
7 Social and water analysis equipments	3,990	
42 Field test kits	220	
7 test outfits	840	
84 oxygen cylinders and valves	1,960	
Nylon twine (5000 lbs)	8,800	
Weedicides	3,000	
Induced breeding and refrigerator	500	19,310
3. *Gardens and fodder*		
Pumps—300 at Rs. 803 ($ 180)	54,000	
Piping	3,000	
Fertiliser	25,000	
Pesticides	3,500	
Garden tools, 350 sets	4,300	89,800
4. *Information and Education*		
Production posters, literature etc.	3,500	
Raw film, 16 m.m.	3,500	
2 audio visual trailers	6,000	13,000
5. *Transportation*		
7 Jeep station wagons, supervision from training centres at $ 2,500.		17,500
7 Personnel carriers at $ 1,500	10,500	
7 Light delivery pickups, at $ 2,375	16,625	44,625
6. *Contingencies*		8,365
Total of supplies and equipment		209,000
7 Freight at 10%		21,000
8 Stipends (as per page 188).		15,000
TOTAL		245,000

ARTICLE VII

Commitments of the State Government

1. Apart from the equipment, supplies, and funds for stipends to be made available by UNICEF, and the technical services to be furnished by FAO and WHO, the State Government will be responsible for providing all equipment, supplies, personnel and services necessary for this programme.

2. The State Government's financial commitments for the three-year period of the project are as follows :

	Non-recurring	*Recurring (Project period three years)*
1. Poultry		
. Cost of establishing 290 village poultry units ; per unit :		
(a) Poultry houses 20′ × 15′ . . . . Rs.	600	
(b) 66 birds, @Rs. 10 each . .	660	
(c) Equipment for houses . .	200	
(d) Litter material	32	
(e) Feeding charges : @ Rs. 2 per bird, per month : 66 × 2 × 12—(approo) . . .	1580	
(f) Honorarium for attendants . .	360	
(g) Incubation costs	60	
TOTAL (approx.)	3500	Rs. 10,15,000
2. Cost of establishing 7 poultry extension centres @ Rs. 59,300 non-recurring and Rs. 7,170 as recurring per centre . .	4,15,100	1,50,570
3. Buildings for storing grinding and mixing feed @Rs. 10,000 per centre . . .	70,000	
4. Pay and dearness allowance of veterinary assistant surgeon @Rs. 2,940 per centre .		61,740
5. Pay and dearness allowance of stockman Rs. 1,320 per centre		27,720
6. Pay and dearness allowance of upper division clerk Rs. 1,620 per centre .		34,020
7. Maintenance cost of a jeep station wagaon at Rs. 3,000 per center . . .		63,000
TOTAL .	15,00,000	3.37,050

	Non-recurring	*Recurring (Project period three years)*
II. Pisciculture		
1. Grants for renovation of fish tanks @Rs. 10,000 per block	70,000	
2. Collection and transfer of fingerlings @ Rs. 10,000 per block per year . .		2,10,000
3. Net making and contingencies . .		6,000
4. 2 Research Assistants, 1 Hydrologist and 1 Soils Chemist, @ Rs. 3,984 per year .		11,952
5. 7 Assistant Inspectors of Fisheries, @ Rs. 8,000 per year		24,000
6. Travelling Allowance for the above staff . @ Rs. 4,000 per year . . .		12,000
TOTAL .	70,000	2,63,952
III. Garden, Orchard and Fodder and Legumes		
1. Cost of digging wells, @ Rs. 1,000 per well for 200 wells	2,00,000	
2. Sheds for motors, 200 @ Rs. 200 each .	40,000	
3. Maintenance, fuel, oil, repairs, etc. for pumps and motors @ Rs. 120 each for 200, per year		72,000
4. Cost of seeds, levelling, fencing @ Rs. 300 each for 200	60,000	
5. Supervisory staff @ Rs. 500 per year for 200		3,00,000
6. Cost of tools, implements, etc. @ Rs. 100 each for 200	20,000	
	3,20,000	3,72,000
IV. Transportation		
Operation Cost of 14 vehicles @ Rs. 3000 per year	.	1,26,000
TOTAL .		1,26,000
V. Education		
1. One Project Nutrition Officer @ Rs. 5,000 per year		15,000
2. Production of films, posters, etc. @ Rs. 10,000 per year		30,000
3. Operation of 2 audio visual trailers @ Rs. 3,000 each per year		18,000
TOTAL .		63,000

Overall Total	Non-Recurring . .	Rs. 18,90,000
	Recurring . . .	Rs. 11,62,002

ARTICLE VIII

Target Time Schedule

1. Launching of the Programme	January, 1962
2. Appointment of Project Staff	January, 1962
3. Eastablishment of 7 Poultry Extension Centres	July, 1962
4. Establishment of village poultry units	September 1962
5. Renovation of fish tanks, if necessary, and stocking them	June, 1962
6. Establishment of school gardens	August, 1962
7. Establishment of gardens for production of legumes, fodder etc.	June, 1962
8. Commencement of milk feeding programme	March, 1962
9. Commencement of distribution of eggs	December, 1962
10. Commencement of distribution of fish	January, 1962
11. Commencement of distribution of vegetables and fruits	September, 1962
12. Orientation courses, training of villagers etc.	From March, 1962

ARTICLE IX

Final Provisions

1. This Plan of Operations will come into effect upon signature by all the parties and will remain in force for three years.

2. This Plan of Operations may be modified by mutual consent of the parties concerned.

IN WITNESS WHEREOF the undersigned, being fully authorised to that effect, have signed this Plan of Operations. DONE in 12 copies in English.

At New Delhi, on 12th January 1962

FOR THE GOVERNMENT OF INDIA
Signature :
Name: Sd/-
Title :

At New Delhi, on 14th December 1961

FOR THE FOOD & AGRICULTURE ORGANISATION.
Signature :
Name : Sd/—
Title :

At New Delhi, on 11th January 1962

FOR THE WORLD HEALTH ORGANISATION
Signature :
Name : Sd/—
Title :

At New Delhi, on 27th November 1961

FOR THE UNITED NATIONS CHILDREN'S FUND
Signature :
Name : Sd/—
Title :

Sd/- **Superintendent**

ARTICLE III. 'J'

MADRAS ENP—Training Schedule (Data for 7 Training Centres-cum-Blocks)

Persons	Number of People		Course Duration	Total Days	Rate (Rs.)	Total Expenses
	Per Block	Total No.				
Orientation :						Rs.
Officers Tranining Centre	6	42	2 days	84		..
Block Officers	3	56	2 days	112	..	..
Samiti Chairmen	7	49	2 days	98	..	..
PHC & MCH Centres incharge	..	4	2 days	8	..	..
			Total Orientation	302	5	1,510
Village Panchayats	..	380	3 days	1140		
Village Level Workers	13	91	7 days	637		
Teachers, gardeners	..	350	7 days	2450		
			Total	4227	3	12,681
Villagers :						
Poultry-men	2 each for every 2000 population	500 Approx.	10 days	5000		
Villagers owning flock		500 Approx.	7 days	3500		
Fishermen		500 Approx.	7 days	3500		
Gardeners	2 from each of the 300 units.	600	10 days	6000		
Women workers	2 from each of the 380 villages.	760	14 days	10640		
Youth organisers	..	200	10 days	2000		
			Total Villagers	30640	Rs. 1.50	45,960
			90 days	720	10.00	
Nutrition Officers	—	8	..	—		
			Total for Nut. officers			10,000
		(Including Rs. 250 ea. for books Rs. 100 ea. for travel)	Total			70,151
			Or approx.			15,000.00

Sd/- **Superintendent**

SCHOOL MEDICAL INSPECTION

Introduction

In all countries where Public Health Organisations are highly developed School Medical Services from a very important branch. In England this scheme of Medical care and treatment of school children was started as early as 1907 and actual treatment of the ailing was made compulsory in the year 1918. Since that time they have made great strides and is now on highly organised system. No child left out of the purview of the school doctor and no ailment of the child escapes the notice of the authorities. The sick child is not left to the parents good sense to be attended to but is taken care of by various voluntary organisations who make necessary arrangements with instructions for their proper treatment. Special and separate institutions are existent that attend to the needs of the school children only enabling treatment without in any manner interfering with their studies. This fact is the essence of success in planning the scheme. The parents are averse to any influence with their children if it disturbs their curriculum of studies.

Scope and Object

1. To discover by routine medical inspection of all the children incipient maladies which left to themselves would assume serious proportion in later life and bring them under treatment.

2. To detect infectious maladies in the early stages and prevent further development by appropriate and timely treatment and to exclude from the school or to isolate children who are having infection likely to spread to other children.

3. To detect the deficiencies and defects in their diets, advise and guide the children with the co-operation of parents in ensuring a cheap and balanced diet.

4. Co-operate with public health authorities in time of epidemic and adopt preventive measures and this saves the children becoming victims to the epidemic. Children who have had the benefit of this scheme will appreciate and co-operate with the public health authorities when they grow up to adult age as they would be having a sound knowledge for the health and civic conscience.

With the above object in view school medical inspection in Corporation Schools was started during the year 1923 and is being continued up to now.

Now going into the details of the school medical services the Corporation has taken up subject as early as 1923. Then the inspection was conducted by 2 medical officers who in addition to their dispensary work had to do this inspection work also. The following year 2 medical inspectors and one medical inspectress were appointed. In course of time more schools were opened and the necessity arose for augmenting the staff. So much so 2 more medical inspectors and one medical inspectress were appointed. Out of these 6 medical inspectors 4 medical inspectors and one medical inspectress received benefit from the Educational grant, and from the general fund respectively. Due to constant increase in the number of schools and the children it was arranged in 1947 that medical officer in-charge of Registration and Vaccination were deputed to this work in addition to their legitimate work without any remuneration. This scheme worked only for one year and it was discontinued. Again another scheme was brought into force and is being carried up to now. The object of this scheme is to cover up as many schools as possible, but this scheme is also a failure. We are not in a position to get the target. At this rate one school could be examined once in every 3 years. But this could be remedied by increasing the staff.

The Medical Inspectors examine the school children whether sick or well at these stages of their school career as shown below.

(a) First examination is done in the first standard when they are admitted.

(b) Second examination is conducted during the middle of their Elementary School career in the third standard.

(c) They are subjected for final examination in the fifth standard before they leave the school.

(d) In addition to this all the entrants in other classes are examined.

The examination includes recording of height and weight and nutritional condition and general examination with a view to detecting the presence of incipient maladies and also infectious diseases. The parents are requested to be present at the time of examination of their children particularly in the case of children having serious ailments. This is done with the effect of securing the co-operation in remedying the ailments of their children. Each medical inspector is expected to examine 30 students a day, for a month of 20 days it is 600 and for one year for only 10 months it comes to 6000. This figure could not be reached for various reasons : due to posting of medical inspectors in short and long leave vacancies, posting to epidemic work etc. Hence the maximum work could not be turned out and also the follow-up work.

The most important part of the school medical service is the 'Follow-up'. The system that is being followed in the Corporation is that a student after the first examination, found defective and who is given treatment is examined again after 15 days. This is a formal examination to study whether there is any improvement or not. Again after one month the student is subjected for a second examination. Here also the same thing is being done and the student is carefully observed. Again after 1 months *i.e.*, after 90 days the student is examined thoroughly as he was examined at the beginning. His weight, height, etc., are taken. If the student is found *cured* the treatment is stopped. If the student is found improved he is given treatment for further period of 30 days. If the student remains in the same stage, his parents are informed and he is sent to one of the city hospitals for check up. Hence a defective student is examined 3 times before he is declared cured or not cured and the medical inspector re-visits the school 3 times. A detailed report will be sent by Medical Inspectors as soon as they finish the follow-up.

When the medical examination of the children is over in the school, the medical inspector immediately goes in for the sanitary conditions of the school. The main items relating to the Sanitary conditions are :

1. Environments.
2. School building.
3. Ventilation and Sunlight.
4. Water Supply.

5. Latrine arrangements.
6. Playground facilities.
7. Adequacy of furniture.
8. Instruction to parents.
9. Instruction to Headmasters.
10. General Remarks.

As soon as the medical inspection and sanitary conditions are noted the Medical Inspectors will have to submit their report within 15 days to the office which in turn is given a current number and sent to the Chief Medical Inspector who after scrutiny and personal inspection submits his remarks to office where instruction will be issued to various departments to rectify the defects.

The Medical Inspectors take up epidemic work in conducting re-vaccination and inoculations in the schools in their area without neglecting their legitimate work.

The Medical Inspectors inspect the distribution of midday meals and milk supply and give their advice and instructions whenever necessary.

At present there are 5 Medical Officers of western system, three Lady doctors, 2 Men doctors and 2 newly appointed (only last year) Unani doctors to work as Medical Inspectors along with the others. The three lady doctors are posted to three ranges in the city, North, Central and South and they are responsible for all the girls studying in the Girls schools and girls in the Boys Schools. The male doctors are posted according to the five ranges in the city. Among these Medical Inspectors one is appointed by the Health Officer as Chief Medical Inspector whose work is to supervise the work of Medical Inspectors, submit periodical reports, consolidated annual reports and to answer all querries from various sources of Government and Corporation, check up and supervise the distribution of milk powder etc., and to attend to all complaints from schools and all other work instructed by Health Officer now and then.

Treatment

The treatment of the defectives are of two kinds : (1) Treatment at the school. (2) Specialised treatment at the Government Hospital with the special requisition from the Health Officer through a Preference card, issued by the Medical Inspectors. Treatment at the school is given to the defective children as per instructions of the concerned Medical Inspectors and is being done by the teachers trained in JUNIOR RED CROSS under the direct supervision of the Head teachers. They maintain a register which is being checked periodically. The medicines are being supplied by the Central Medical Stores under the charge of the Chief Medical Inspectors who get the annual supply of Rs. 3,500 from the General Medical Stores, maintained by the Madras Corporation at Chintadripet. Shark Liver Oil and Calcium Lactate are given to malnutrition and Yeast for nutritional form of stomatities. And other Vitamin tablets. Anaemia is being treated by iron and other drugs. All minor ailments are being treated at the school throughout the year. Necessary supply is being made now and then to the J.R.C. squad in each and every school. The receipts and issues at the Central School Medical stores and at the schools are subjected to audit.

There are two Medical Ambulances for transporting cases of Hansen (Leprosy) disease to two skin clinics maintained by the Corporation of Madras, one in the North Range and other in the South Range where the cases are given complete and continuous treatment. One van is to be condemned.

The Corporation of Madras maintains 296 Elementary Schools, spread over the entire city with a total of nearly one lakh ten thousand of students on roll. Majority of the schools are situated in slum areas and low income group people. The pupils attending the schools are drawn mostly from the low income groups and most of them suffer from malnutritional and Vitamin deficiencies diseases.

Out of the 296 schools the Corporation is proud of running :

1. Higher Elementary Schools	70
2. Elementary Schools	148
3. Slum Schools	23
4. Basic Schools	8
5. Feeder Schools	8
6. Urdu Schools (Boys)	21
7. Urdu Schools (Girls)	18
TOTAL .	296

The total number of schools maintained by Corporation is 296.

Number on roll :	1,10,000
The average attendance :	96,000

Now by calculating the average number of schools examined, the average attendance and the number examined for the last 3 years are given below.

Year	No. of Schools examined	Average Attendance		Number Examined		
		Boys	Girls	Boys	Girls	Total
1957-58 . . .	97	51,686	42,106	11,511	13,544	25,055
1958-59 . . .	87	53,926	45,466	14,501	14,298	28,799
1959-60 . . .	84	54,606	46,564	9,511	14,070	23,581
TOTAL .	268	1,60,218	1,34,126	35,523	41,882	77,435
AVERAGE .	89	53,506	45,707	11,141	13,960	25,814

From the above figures it is clearly seen that one School will be examined once in 3½ years and also one student will be examined once in 3½ years. The present position is due to inadequacy of staff. If staff and other facilities are improved there is a chance to examine every school every year and every student every year. On account of inadequacy of staff many of the girls studying in Boys School are without treatment for years together. This pitiable condition should be solved at any cost though not completely but to a certain extent. The present financial position of the Corporation is such that they are not in a position to increase the staff. Unless the scheme is taken up by the Centre during the 3rd Five Year Plan and see that the scheme is helped till the financial position of the Corporation reaches a sound position to push the scheme still further.

Expenditure for School Medical Inspections for 1959-60.

3 Lady Medical Officers 2 Male Medical Officers 2 Unani Medical Officers	Rs. 25,692

The present 3 Medical Inspectresses who are in charge of Girls' Schools and also girls studying in Boys' Schools are insufficient. Hence if 5 more Medical Inspectresses are posted the total comes to 3+5=8. Each will have to examine 6,000 a year. The total comes to 48,000. By this we can examine all the girls studying in Corporation Schools. The same is the case with boys. Now we have only 2 Allopathic Medical Inspectors. The two Unani Medical Inspectors are not in a position to cope with the work of the other Medical Inspectors. Hence if 6 more Medical Inspectors are appointed the total comes to about 1+6=7 *i.e.*, about 42,000 students could be examined. By this arrangement some improvements could be shown.

The total expenditure for these Medical Officers

5 Lady Inspectresses . . . . 6 Male Inspectors	Rs. 41,844
The medical expenses for purchase of equipment etc. at the rate of Rs. 200 for each for 11 Medical Officers	2,200
Increase in supply of medicines to children	3,000
Transport of more children if the whole city is to be examined and cases sent for Hansen disease 2 more vans	32,000
Petrol charges, Drivers' pay approximately (not calculated) . . .	30,000
	Rs. 99,544

On the whole the initial expenditure would be nearly Rs. 1 lakh.

I request the Committee to consider the situation and recommend for increase of staff etc.

REPORT ON CHILD WELFARE IN SCHOOLS

Name of the District : Madras (City); Year : 1959-60.

The Corporation maintains 296 Schools in the City. There are Four Medical Inspectors and 3 Medical Inspectresses. Since the total number of school children is nearly one lakh the Medical Staff employed is found insufficient.

The school children are examined in 3 stages of their elementary school career: (1) At the time of admission *i.e.*, 1st standard. (2) In the Intermediate stage. (3) Finally before they leave the school *i.e.*, in the Fifth standard. Due to want of adequate staff medical examination was restricted to these 3 stages with a view to cover a large number of schools in a year. The question of augmenting the staff by appointing honorary or full time medical inspectors is under consideration with a view to make it possible to examine all the children in one year.

Minor ailments, malnutritions and other nutritional and Vitamin deficiencies are treated at the school premises by the Medical Inspectors with the help of First Aid Trained Teachers. Necessary drugs supplied by the Chief Medical Inspector of schools who is the co-ordinating officer results in good benefit. Selected ill-nourished children are given Mid-day Meals during school days. 28,730 children were fed in 265 schools.

Infectious diseases cases are isolated and treated.

Every non-infectious type of Hansen disease is taken to the Corporation Skin Clinics in the School Medical Van provided for this purpose and treated by the Specialists.

By a system of follow up work the defective children are re-examined and treatment continued till they are cured.

2. *School Medical Service:*

(a) Is there any regular state School Medical Service ? If so, give its functions, area covered and types of schools included within its purview.	Yes. The scheme includes all Corporation Schools in the City of Madras. The functions are to examine each and every child sick or well and arrange for the treatment of the ailing.
(b) Give details of Medical Staff employed during the year.	
1. Number	1. 4 Medical Inspectors, 2 Allopathic & 2 Unani and 3 Medical Inspectresses.
2. Designation	2. Medical Inspectors.
3. Full time	3. Full time.
4. Area covered . . .	4. Whole City of Madras.
(c) Give details of non-Govt. Agencies running the schools Medical Services.	No information is available regarding Medical Inspection outside the Corporation Schools. This information is available only in the Office of the D.E.O. of City.

3. *Health Education:*

(a) Give a brief Description how Health Education is imparted to children.	Instructions on personal Hygiene and other matters on Health are given in all the classes and this is included in the curriculum of students in all the schools. The Medical Inspectors also give instruction on Health matters during the time of inspection.
(b) Give a brief Report on the Progress of Health Education during the year.	Progressively more and more time is devoted by the staff on these matters and a state of Health awareness is apparent among them.

(c) Are there school Medical Officers teachers and parents organisation for discussion and consultation on child Health?	Such discussions take place during the time of inspections and also during the revisits to the schools.

4. *Medical Inspection :*

(a) How often during a school year Medical Inspection is conducted?	Once in 4 years though the aim is to make every year. This is due to want of adequate staff.
(1) Does the Medical Examination include.	Yes.
1. Heart	
2. Lungs	
3. Vision	
4. Eye Diseases	
5. Ear	
6. Nose	
7. Teeth	
8. Throat	
9. Chest	
10. Skin	
11. Malnutrition	
12. Speech	
13. Posture	
14. Physical Appearance	
15. Behaviour Problems	
(2) Past History	Yes.
(3) Immunition	Yes.
(b) Are proper medical inspection records maintained? If so, a specimen copy may be attached.	Yes. Specimen attached.
(c) Are copies of medical inspection reports sent to parents?	Yes.
(d) Number of schools in which medical Inspection of children was carried out during the year.	84 schools.

(g) Give details of steps taken for treatments and follow up.

Minor ailments are treated at the school itself by first aid trained teachers. Shark Liver Oil and Calcium Lactate are administered to all ill-nourished children in the schools. Yeast tablets were given to children suffering from stomatitis of nutritional origin and other Vitamin B deficiencies. Iron Tonic for Anaemia was administered. Mid-day Meals were given to selected children under or ill-nourished. Reconstituted milk was given to certain others.

Certain ailments such as dysentery, fever, etc., that could not be attended to at the school were treated at the nearest Corporation Dispensary.

Serious ailments are referred to Government Hospitals for institutional treatment. A preference card is issued to such children. Children found suffering from Hansen infection were taken to Corporation Skin Clinic in school medical vans and treated without their studies being disturbed. Suspected cases of T.B. are sent to Corporation T. B. Clinics for tests and treatment.

The school staff is maintaining a list of these defective and the medical inspectors follow up the treatment given during the re-visits to the schools. Ordinarily each school is revisited thrice after the routine work. Hence a student is re-examined thrice before he is declared cured or not.

5. *School Clinics:*

(a) No. of school clinics in the District.	There are no separate school clinics. Corporation dispensaries serve this purpose. In addition to this the schools themselves serve as school clinics for minor ailments and some other defects.
(b) No. of children treated in the school clinics.	7225.

6. *School meals :*

(a) Is there any scheme for providing meals during school hours? If so, give its details.	Yes.
(b) What is provided? . .	The following shows as to what is provided in the shape of rice, sambhar and vegetables. The Mid-day Meals consists of : Par boiled rice . 3 oz. Dal . . . 5/12 oz. Vegetable Oil . 1/15 oz. Vegetables . . 3 oz. Condiments . . 3 oz. (Separate report attached).
(c) Number of schools covered by the scheme during the year.	296
(d) Number of children of these schools provided with meals. How are they selected?	28730 children both by health point of view and financial condition of parents.
(e) Are these meals free? . .	Entirely free and the expenditure is borne by the Corporation of Madras.

7. *Distribution of Milk* :

(a) Is there arrangements for distribution of milk to the School?	Yes.
(b) If so, from which agency the milk is obtained.	Voluntary contributions, I.R.C. etc.
(c) What type of milk is obtained? Dried or Condensed Milk.	Skimmed Milk Powder (dry).
(d) What arrangements are made to boil the milk?	The milk is reconstituted with strained tap water and distributed.
(e) Number of schools having the arrangements for distribution of milk during the year.	The number will depend on the quantity received during the year 194 schools were benefited.
(f) Do all children drink milk in schools? If selection is made on what basis it is made.	No. Certain selected schools receive milk. Selection is based on factors in number 2 malnutrition and poverty.
(g) Is milk free for all? . .	Yes. It is entirely free.
(h) In case of children suffering from malnutrition what measure is taken to remove the deficiency.	1. They are given Shark Liver Oil. 2. Yeast in suitable cases. 3. Iron Tonic (if combined with anaemia) 4. Mid-day Meals. 5. Supply of reconstituted milk when available.

9. *Cleanliness inspection* :

(a) Is Inspection of cleanliness held in all the schools?	Yes. By the Junior Red Cross Organisation in the schools. Shields and merit certificates are awarded to the best school for this.
(b) Are children societies formed for inspection, and maintenance of personal cleanliness, cleanliness of class rooms and schools?	In many schools health squads and health societies are organised and they inspect the cleanliness of the school premises, class-rooms and environments. They also carry out inspection of personal cleanliness. They maintain records to progress of school inspection. Their activities are supervised by the J. R. C. Officers of the Corporation and the Government.

10. *Physical training :*

(a) Is physical training compulsory in all schools? If so, what is average weekly hours allotted to physical training in all types of schools.	Physical training is compulsory in all the schools and a period of 40 minutes is allotted for it every day in the time-table.
(b) Number of schools (Primary, Middle and High Schools separately) having trained Physical Instructors.	2 Trained physical instructors for High Schools and 23 for other schools. Teachers also help for this in this work.

11. *Physical Education and Recreative Activities :*

(a) Please give briefly the administration and organisation of physical education and recreation in the District.	There are 23 playground instructors. In addition to this Headmasters and teachers take the place of instructors. Two Instructors for High Schools in the case of colleges and other schools. 23 playgrounds with 23 playground instructors are maintained by the Corporation of Madras. There is one senior play ground Instructor to supervise the whole work. Children's playgrounds are also attached to these playgrounds. They have also the necessary equipment.
(b) Please give details of facilities for physical training, sports and games in schools.	Yearly we conduct Annual sport and distributions of prizes. They take part in the inter school sports. They play all the games. Ralleys are conducted at Stadium for all Elementary Schools.
(c) Give brief report of work done by organisations like Scouts, J.R.C., St. John's Ambulance, N. C. C., Youth Hostels and youth clubs.	*Scouts*—Scouting activities are done in all schools as done in all other Govt. and Private Schools. There is a separate unit for Scouts belonging to the Corporation Schools. There is one full time organiser along with other concerned officers. *J. R. C.*—J. R. C. work is carried out in all the schools run by C. M. There are now 235 J. R. C. groups registered and each group is doing useful work in the schools including

	cleanliness of personnel, hygienic health habits and international friendship among children reading in the schools. Group is divided into serveral squads which are entrusted with the above items. These J. R. C. help a lot in the schools routine work and pupils do this willfully and heartily. *St. John's Ambulance*—Every year certain teachers are allowed for St. John's Ambulance course and are in charge of these activities. Youths' Hostels—nil. Youths' Clubs—nil.
(d) What are the outstanding curricular activities existing in schools affording opportunities for leadership to children in the field of physical Edn. Recn. and Health Education ?	1. Citizenship training. 2. N. C. C. Movement.
12. *School Play Grounds* . . .	There are 2 types of playgrounds. One being separate play ground maintained for the schools and also for the public. The second one is the open space available in schools used as play grounds. There are 23 separate play grounds with 23 instructors provided for them. The sceond is being conducted by the staff.
13. *School Gardens*	About 50 per cent of the schools are having gardens. The rest use plants in mud pots. Garden competition are conducted at the time of opening of the Flower Show. This is being judged by (1) Councillors, (2) Educational Officer. (3) Educational Committee (4) Park Supervisor.
14. *Child Guidance*.	Through Nursery schools child guidance, child clinics and child welfare is being taken up.
(b) Give brief detail of lectures delivered on pamphlets published on child guidance, child welfare etc. by the state.	Nil.

15. *School Building :*

Give a general report on school buildings in the Dt. (Structural point of view, over crowding, sanitary arrangements, water supply, etc.)	Out of 296 schools maintained by the Corporation, 165 Corporation owned, 4 Govt. buildings and 127 rented buildings. The total being 296. The Sanitary condition of the schools owned by the Corporation is satisfactory but in the rented buildings, it is not satisfactory. In certain cases where the schools are situated in congested areas of the city, the sanitary conditions, etc., are not upto the mark. Defects in the schools buildings with particular reference to latrines, play grounds facilities. No water supply were noticed and suggestions made to the Educational Department for remedying during the Medical Inspection of the schools by the Medical Inspectors.

Health Officer
Corporation of Madras.

MEDICAL INSPECTION 1959-60

During the year under review 5 Medical Inspectors and 3 Medical Inspectresses continued to attend to the School Medical Inspection of children in the Corporation Schools. Out of five Inspectors, one retired, two are Allopathic and the other two are Unani doctors. Out of 296 Schools only 84 schools were examined as the complement of the staff was not sufficient to cope up with the increase in work and further due to dearth of doctors in the dispensaries, the Medical Inspectors had to work as Medical Officers of dispensaries. Hence the out-turn of work is low for the period 1959-60. The number of pupils on roll is about one lakh and ten thousand and the average attendance being 99,500 out of which 54, 606 are boys and 46,564 are girls.

Out of 296 schools the Corporation is running :

1. Higher Elementary Schools	70
2. Elementary Schools	148
3. Slum Schools	23
4. Feeder Schools	8
5. Basic Schools	8
6. Urdu Schools (Boys)	21
7. Urdu Schools (Girls)	18
TOTAL	296

In addition to these schools, the Medical Inspectors and Inspectresses have examined the student of two High Schools, maintained by the Corporation of Madras one at Saidapet and the other at Nungambakkam.

Out of these 296 schools, the children of 84 schools were examined during the year, *i. e.* 9,511 boys and 14,070 girls were medically examined during the the year out of 54,606 boys and 46,564 girls. From the figures shown it will be clearly seen that unless the staff is increased there is no scope of examining every student every school in every year as instructed by the Govt. Two School Medical Ambulances are under the control of the Chief Medical Inspector. The work of these is to transport children to skin clinics and to all other functions, and also for B. C. G.'work. One of the vans is to be condemned and is kept without use. This van is intended for the North Range. So much so a new Van is to be purchased for the purpose. The other is under repair and is not running at present. The following statement shows the no. of entrants and regulars medically examined and the no. of defective found during the medical inspection :

Groups	BOYS			GIRLS		
	Number examined	Number found defective	Per cent	Number examined	Number found defective	Per cent
Entrants . . .	2667	1421	53.24	5296	2457	46.39
Regulars . . .	6844	3505	51.19	8774	4250	48.41
Total . . .	9511	4926	51.79	14070	6707	47.66

Malnutrition.—1184 boys (12·5118%) and 2274 girls (16·1620%) were under-nourished as against 1386 boys (9·5589%) and 1399 girls (9·4539%) respectively in the previous year. 5836 children were given shark liver oil and calcium lactate for malnutrition and rickety chest and 3830 children were given yeast and Vitamin 'C' for various forms of stomatic of nutritional origin and other forms of Vitamin B deficiency.

Medical Treatment.—197 boys and 537 girls were treated at the Corporation Dispensaries for ailments that could not be attended to at the School. 954 children were sent to various City Hospitals for operation and specialised treatment. 59 children were sent to Govt. Ophthalmic Hospital and 7225 children were treated at the School for minor ailments, malnutrition and stomatics and 1016 children were sent to various City Hospitals for investigation and treatment.

Re-inspection.—121 re-visits to the schools were paid after the routine inspection for the treatment of the defects. 5805 boys and 8138 girls were re-examined during these revisits and 601 parents were met.

Personal Hygiene—276 boys (2.9090%) and 54 girls (0.3127%) unhygienic with reference to their dress as well as body. Advice to students was also imparted in the presence of their parents. Personal hygiene was also taught to them in the classes during the time of the medical inspections.

Diseases of Bones & Joints—778 children having deformities of chest due to rickets were suitably treated.

Infectious and Contagious.—706 boys (7.4230%) and 950 (6.7520%) girls had contagious and infectious diseases. The children were segregated and were given separate seats. 339 boys and 586 girls were having scabies and were suitably treated at the school. About 164 children having Hansen's disease in the early stages were treated at the Skin & Leprosy Clinics at Ice House, Triplicane. Good improvements were noticed in them. Out of 164 cases 31 are infective and the others are in the non-infective stage.

Other Diseases and Defects.—246 boys (2.5865%) and 363 girls (1.1585%) having defects not mentioned under the above headings were treated both at City Hospitals and at schools.

Minor ailments.—62 boys and 142 girls had dental and oral defects and were treated at the City Hospitals with benefit. 42 children had their carried teeth extracted. 1311 children had enlarged tonsils and 123 children had their tonsils removed at the City Hospitals. 7810 children having ear diseases had their treatment at the School. 11 boys and 15 girls were defective in hearing and were provided with seats near the teachers so as to be within the range of their hearing.

Circulatory System.—185 boys (1.9450%) and 214 girls (1.5210%) had defects relating to Heart and Blood. 304 children having anaemia improved by treatment.

Co-operation of Teachers.—601 parents of children were present in the school at the time of inspection. They were given full advice about cleanliness and the importance of getting their children treated at the earliest stages. The Headmasters and the teachers trained in Junior Red Cross Work were instructed to give medicines to defective children having malnutrition, minor ailments, rickety chest and stomatics for 90 working days.

School Sanitation.—Defects in the School building with particular references to latrines, play-grounds facilities and water supply were noticed and suggestions were made to the respective departments for remedying the defects.

Health Education.—48 talks and the lectures were arranged in the Schools for the benefit of the children. The total attendance was 71286.

Medical Examination of Corporation thozhilalies.—1070 men 112 women workers of all the Departments were examined for physical fitness or invalidation during the year and duly certified.

General Preventive Work.—The Medical Inspection Staff and Health Staff with the help of the students undergoing sanitary inspectors training re-vaccinated 89,100 Corporation children from 24-3-1960 to 10-4-60 under the National Smallpox Eradication Scheme.

Other activities in connection with the School.—With reference. to letter No. P. N. O. 27 N 55 C. M. dated/9-9-59, Kumari A. C. Chakrapani, Public Health Nursing Tutor, Govt. General Hospital, Madras has been visiting Moore Market, Corporation Elementary School and the Jutkapuram Elementry School in batches of 2 along with the tutor since Oct. 59 to April 60. The number of visits made to each school is 31 making a total of 62 visits and 62 home visits were also made. During the Schools visits, students nurses survey the sanition of the School and its surroundings, drinking and washing facilities and do complete inspection of one or two pupils' houses. During the home visits, the child and mother are given talks on personal hygiene, talks on domestic hygiene, care of food and water, choice of food within their means, method of cooking, etc. Practical demonstrations were also given on periodical treatment and in the treatment of scabies etc.

School children and their parents respond fairly well and follow the suggestions given. Children with acute illness were referred to the hospital and follow-up was made in about six cases.

During the 1st week of November. the Chief Medical Inspector of the Corporation visited both the schools during out visit and supplied the following articles :

Portable weighing machine.	Material for dressing and basins.
Drugs for minor ailments.	Vitamin tablets.

Since these children were weighed monthly and the weight record maintained at both the Schools, yeast and Vitamin tablets were distributed to the deserving pupils. Soap was supplied which was used for washing hands before school meals.

The same tutor is continuing the same work since the re-opening of the Schools in the same schools selected last year.

Moore Market School.

Total No. : 91

Cod Liver Oil given : 65 students

Yeast tablets 10—1 B.D.

Pus in the ear	4	Referred to the General Hospital and follow up done.
Conjunctivitis .	4	
Carried teeth .	6	
Tonsils . .	2	
Scabies . .	4	Referred to Hospital.

Demonstration on bath and application of ointment was given to child and mother. Follow up was done.

Teachers in both Schools were taught the method of applying eye and ear drops and to attend to cuts and abrasions.

Jutkapuram School

Total Strength : 95

Cod Liver Oil given to all as all students are under 10 years. Following students were referred to General Hospital for condition shown against each and follow up done.

Ear ache . .	6
Conjunctivitis .	8
Fever . .	2
General Debility	1
T. B. Clinic .	1
Psychiatric clinic	1
Scabies . .	2

Follow up continued for the child attending T. B. Clinic. Children with scabies and their mothers were given demonstration on bath and application of ointment.

Supply of Spectacles to the poor boys.—Provision of spectacles to poor children donated from Sri C. Rajagopalachari, Ex.-Governor-General—Letter dated 25-9-59 from Sri C. Rajagopalachari, Ex.-Governor-General of India and Resolution of the Council dated 15-12-1959.

According to the above resolution, the Supdt. Govt. Ophthalmic Hospital was contacted. In his reply dated 11-2-60 he requested to send the students having defective vision during the summer holidays. Accordingly arrangements were made and children were taken to the Hospital. The total number of children from the Higher Elemenrary Schools were 144. The children were taken in batches numbering 16 both new and old cases. Out of 38 High School children 8 children were prescribed for glasses. Out of 144 children only 35 were given prescription glasses. Arrangements have been made for issuing instructions to the M.Is. to send the defective children to the nearest hospital. The Headmasters were instructed to send the prescription issued to the Educational Officer who in turn will forward the same to the Health Officer who is incharge of distribution.

Nursing Services in the Corporation Schools.—With reference to letter No. 27-N/55 GH dated 9-9-59 from the Dean, Govt. General Hospital the Nursing Supdt. Govt. Gosha Hospital (K.G. Hospital, Triplicane) selected C.N.E.S. Lloyds Road for the above purpose and for practical purposes. The Chief Medical Inspector under instructions from the Health Officer gave all facilities to examine children etc. and give a course of lectures on school Medical Inspection during November, 1959.

Mid-day Meals : About 28,730 students are taking Mid-day Meals daily. Due to very little supply of Milk powder, only feeder schools and creches were selected as beneficiaries.

NEW SCHOOLS FOR OLD

The People's Gift

Mahatma Gandhi, the Father of our Nation was constantly reminding the Nation that the Swaraj of his conception should flower into Gramraj. What does this Gramraj mean? In simple terms, it means the village takes upon itself the responsibility for the welfare and upkeep of the village. In short, all undertakings within its mean will be its responsibility. The villages will not look to an external agency for these things. Can there be any two opinions about the soundness of this philosophy or the vitality of this idea?

After Independence, we find a marked and welcome change in the attitude of the villager. Unlike his forefather of the pre-independence days, the present day villager realises, as well as any educated man, the value of sound, good education. He is keenly alive to the need and actively thirsting for proper education for his children. This thirst for education is more widespread now than in the past.

The Madras State can with legitimate pride claim first place in the field of social welfare, through which the people are regaining the spirit of self-help and self-reliance. The people's movement for free Mid-Day Meals for schools children, launched purely as a voluntary measures in July, 1956 is still continuing and has proved to be a beacon light for other States.

Unless education is assured in a substantial measure, democracy cannot function efficiently and safely for long. The first step towards this is universalisation of the provision of elementary schools, that is to say the State should strive to provide every area having sufficient number of inhabitants with a school, so that every child will have a school within walking distance. In Madras State, a stage has reached where every village with a population of 300 and above has a school within a distance of one mile.

But the opening of a school by itself does not bring into the school all the children of school-age. Still, many will not go to school. Only a small percentage of them are employed on some odd job or other; but what about the others? To them the very problem of existence is so absorbing that they do not have the mind to think of the future, much less of a bright future. In a mood of frustration and drift, they drift along the highways and byeways but not into the school. If these are to be drafted into the schools, there must be a force to attract them. What is the force that can attract these millions of starving children?

It is only actual experience that can arouse in us feelings of one kind or other. It was one such experience that sparked the idea of Free Meals Scheme.

In the history of Mid-day meals Scheme, Perinthalmanna in Malabar District has an important place. Though as a student of Economics I was aware of the extent of poverty prevalent in our country, it was in the Board High School at Perinthalmanna I learnt to feel for the starving millions. It was there, while participating in a students' gathering, that I was an eye-witness to the sad spectacle of two boys swooning of hunger. An enquiry revealed that scores of students of that high school went without a noon-meal and as a result, fainted in the class-rooms some time or other in course of the day. How could any one educate ? It is these thoughts that disturbed my peace for some weeks thereafter. Meanwhile investigation revealed that this evil of hunger and starvation among students was not confined to a few in one or two schools but was widespread.

To educate a starving child is next to impossible. Hunger and consequently inattentiveness affected to a considerable extent the capacity to absorb and benefit by classroom teaching. They equally affected their participation purposefully, in co-curricular activities. Under these circumstances the children of the poor, however, well-equipped by nature, were not able to rise to the same heights as the children of those whose wants were adequately and properly satisfied. If children of the poor have to benefit fully by their schooling and if the nation's money and efforts spent on them are not to go waste, we have to ensure that they get a square meal, at least once a day. This is a part of the charge that society has to bear if the expenditure on Education is to bear results.

In a country where day after day thousands of people who cannot work or will not work are being fed out of the charities of those that are working hard, is it impossible to organise and divert a part of those charities into the School Meals Programme? This idea was taken up enthusiastically and implemented in many villages. The time-honoured hospitality and charity of the Indian villagers found one more channel of expression. The rich and the poor, the literate and the illiterate vied with one another in contributing their mite. House-wives showed the way by setting apart a handful of rice each day to this noble cause. Farmers set the movement in further motion by donating grains at the threshing field itself. Children have also a place of honour in this new form of service. In an elementary school at Avinashi Coimbatore District, they launched the movement, by each pupil bringing a matchbox full of rice for a few days and in a certain high school the entire student community contributed once a week a handful of rice. Cash donations flowed freely from salaried and monied persons.

And only after a year the State Government agreed to a regular subsidy on the basis of 60 per cent of the recurring cost. This Voluntary Movement gained further momentum as a result of the Government's support. Today, out of 26,281 Elementary schools, 25,294 are providing free noon meals to poor children. The number of pupils that derive this benefit is as large as 9,11,820. In addition to these, as many as 13,319 students reading in 506 High schools are also receiving free meals entirely out of people's contribution, without any subsidy from Government. For every one of these Mid-day Meal centres, there is a local Meals Committee of donors. There is a lot of elasticity with regard to the constitution of these Committees and the procedure for their functioning.

The People's Movement for free Mid-day meals gave birth to a more comprehensive movement. Our pre-occupation over long years with education in the University and High School stages, has kept out of mind the standards in elementary schools. The result was that almost all elementary schools were starved of many essential requirements. Many of these nurseries of Education did not have a decent place to function. Many of them were housed in sheds that were mere apologies for sheds. Some of them at least were fit more for cattle than for the future citizens of this great Republic. How can children be adequately educated when there is no black-board to write on, when there is no map to look at and no books to read? How can one teach even habits of sanitation when there are no sanitary conveniences of even the most elementary type? Is it any wonder that schooling at sub-standard level has produced only sub-standard products out of these elementary schools, affecting in turn the standards in high schools and colleges? Any one who has seen a large number of our elementary schools, will readily realise that all our efforts to improve standards of education have to start from the bottom, namely, the elementary schools. The deficiency has to be made good even at the foundation. These problems could not therefore brook delay. This compelled our thoughts along unorthodox lines.

In an area around Kadambattur in Chingleput District, it was found that 76 elementary schools had been properly providing free mid-day meals without any break for over six months. This indicated not merely the good and sustained response from the public but also the existence of mutual goodwill and co-operation between the public and the teachers. We asked ourselves how we should capitalise on this continuous flow of goodwill ? We decided to try an experiment in harnessing community support for School Improvement programmes. What should be the *modus operandi* was the next question.

The first stage in this Experiment of School Improvement Project was a comprehensive survey of the actual condition of each school in that area. That survey kept in view in the normal requirements, of an elementary school with regard to accommodation, furniture, equipment, teaching aids, library facilities, sanitary provision, space for play activities and gardening. The requirements, not only for the immediate present but also for the future, were kept in mind while assessing the needs of individual schools. This survey revealed to us the actual deficiencies under each item. Then the people in the school village and the neighbourhood were apprised of these deficiencies either at a formal gathering or at informal meetings. This novel idea caught the imagination of the people and the response was spontaneous and generous. After the villagers had undertaken the provision of the various requirements a conference of the public, donors and of teachers was held at Kadambattur on 20th February, 1958. At that conference articles presented to the schools were exhibited. The conference and the exhibition demonstrated to society the possibility of widespread and quick reconstruction through self-help.

This mass movement for community self-help which had an humble birth in 1958 has now grown into gigantic proportions. The Madras State can proudly count to its credit as many as 122 Conferences within a comparatively short span of 30 months. These conferences have covered 17,584 schools in all. The total number of schemes undertaken in respect of all these schools is as large as 1,29,184. The estimated cost of all these schemes works up to Rs. 5.81 crores. The School Improvement Movement covers the following schemes :

1. Construction of school buildings, (2) Electrification of school buildings, (3) Construction of quarters for teachers, (4) Construction of latrines, (5) Repairs to and white-washing of existing buildings, (6) Bhoodan for Mid-day Meals, play area and gardening, (7) Supply of cooking utensils for Mid-day meals, (8) Supply of books and slates to poor children, (9) Supply of uniforms to poor children, (10) Provision of libraries, (11) Supply of classroom furniture equipment and teaching aids, (12) Provision for night study and supply of necessary lights, (13) Supply of equipment for handicrafts and (14) supply of first aid materials.

Although all schools may not be fortunate to have all these necessities supplied, we try to ensure that the basic needs of sanitary conveniences, drinking water and children's libraries are provided. We also try to ensure that some unofficial local arrangement is made for periodical repainting of black-boards and white-washing of school buildings.

To what extent have these schemes been completed? Out of schemes costing Rs. 581 lakhs, schemes to the value of Rs. 378 lakhs have already been carried out, either at the time of the conferences or after them. Still it cannot be claimed that in all those thousands of schools that have come under these Projects, the deficiencies have been made good fully.

Education has now acquired a larger meaning. The School Community not merely learn the 3 R's but also have started to play their part in growing more food which incidentally helps them to learn their lessons on nature study first hand. Most elementary schools have started gardening and nearly 3,000 saplings have been planted. We can now claim that the black boards are really worthy of their name. Towards these various improvements, both major and minor, 6068 projects have been undertaken. The sum total of the cost of these projects is 23 lakhs of rupees. Towards these, 11.5 lakhs of rupees have been realised either in cash or in kind. Of these, many have been carried out. Some more remain to be completed. We are confident that every one of them will be completed in due course.

Summary of the Report by Shri N. D. Sundaravadivelu, Director of Public Instruction, Madras, presented on the occasion of 123rd Madras State School Improvement Conference.

APPENDIX C-VII

Trial of multi-purpose food in School meal

By the Corporation of Madras.

As per instruction of the *Ad Hoc* Committee constituted by the Council for examining the present system of mid-day meals supplied to the Corporation School children, 750 lbs. of Multi-purpose Food were obtained from the Central Food Technological Research Institute of Mysore and tried on 50 children from each of two Corporation Schools at Strahans Road and Ethiraj Gardens. The Chief Medical Inspector has furnished a final report, which is submitted herewith.

100 children who are supplied with mid-day meals were selected as beneficiaries. Another group of 100 children provided with mid-day meals were selected to serve as controls. The first group of 100 children were given mid-day meals to which 1/3 oz. of multi-purpose food per child was substituted for 1/3 oz. of 'dal' in the 'sambhar'. The second group of children were given usual mid-day meals with 1/3 oz. of 'dal' per child in the 'sambhar'. The trial was conducted for a period of 90 working days from 21st November 1956 to 15th April, 1957. The initial examination was completed on 21st April 1957 and the final examination was completed on 30th April, 1957. The examination mainly contained of recording heights, weights, malnutrition, vitamin deficiency and adequacy of adipose tissue in the body. The following are the results :

Beneficiaries.—The average height at the commencement of the trial was 48·04″ and at the final examination it was 48·802″ showing an average growth of 0·8″ in height.

The average weight at the commencement was 44·6 lbs. and at the final examination it was 53·54 lbs. showing a gain in weight of 8·9 lbs.

Controls.—The average height in this group was 48·5″ at the initial examination and 48·6″ at the final examination, showing a growth of 0·1″ during the same period.

The average weight at the initial examination was 45·39 lbs. and at the final examimation it was 48·86 lbs. showing a gain in the weight of 3·5 lbs.

It can be seen from the above findings that children given multi-purpose food show 0·8″ increase in height and gained 8·9 lbs. in weight, while those not given this food gained only 0·1″ in height and 3·5 lbs. in weight during the corresponding period.

There was significant improvement noticed in the nutritional condition of the children also. The percentage of cured and improved among the ill-nourished was 75% in the beneficiaries and 49% in the controls. 85% of the children with Kesodermia among the beneficiaries have been cured and improved, while on 20% showing benefit among controls. 86% of the beneficiaries having rickety chest gained in weight and showed good improvement while among the control the percentage was only 69.

On the whole, the addition of multi-purpose food to the mid-day meal has resulted in rapid gain in weight and improvement in the health condition of children, even though the quantity given was very meagre. The results would have been more pronounced if 1 oz. of M. P. food had been given to each child in the form of 1/3 oz. mixed in 'sambhar' and 2/3 oz. in the form of chutney or added to vegetable 'koottu'.

While coming to the financial aspects, the cost of a meal with 1/3 oz. 'dal sambhar' works out to 10 nP. and that with 1/3 oz. multi-purpose food to 11 nP. showing a slight increase of 1 nP. per meal. If we propose to give more than 1/3 oz. M. P. Food, the cost per meal will correspondingly increase and we may have to reduce the total number of meals to a certain extent to balance our allotments.

Under these circumstances, it is suggested that we may replace 1/3 oz. of 'dal' with ⅓ oz. of M. P. Food per child and increase the quantity of M. P. Food when our financial condition improves.

APPENDIX C-VIII

Acceptability Tests in schools on odourless fish flour

A supply of fifteen bags of fish flour weighing about 1,100 lbs. in all, was received in May, 1955, through the UNICEF. 100 lbs. of this fish flour was sent to the Director of Public Health, Andhra, for trials in Andhra State. Of the remaining 1,000 lbs. half was sent to Madurai, and half retained at Madras, for trials in suitable schools.

Quality.—The fish flour was not totally devoid of smell of fish, and was received in good condition.

Recipes with Fish flour

As a preliminary to the School trials, the following recipes were worked out in the Laboratory

1. *'Chapati' with 25 per cent Fish powder*

Ingredients.—Wheat flour 75 gms., Fish powder 25 gms., Cooking oil 1 table spoon, Salt to taste.

Method.—Mix the wheat flour, salt and fish powder with water and prepare the dough. Knead well and allow to stand for half an hour. Roll out on a pastry board. Fry over brisk fire on a greased pan. Keep turning until it is well cooked.

2. *'Kara Kolambu' with Fish Powder and Green Mango*

Ingredients (for 4 persons).—Mango green 65 gms., Fish Powder 50 gms., Chilli powder 5 gms., Condiments 8 gms. (Mustard and Black gram), Onions 25 gms., Cooking oil 1 table spoon, Salt to taste.

Method.—Fry the condiments and sliced onions in oil till brown. Add tumblerful of water to sliced mango. Bring to boil ; add the chilli powder, salt, and fish powder and more water as required and continue till well cooked.

3. *'Kara Kolambu' with Fish Powder, Tamarind and Mango Green*

Ingredients (for 4 persons).—Fish powder 65 gms., Green Mango 32·5 gms., Tamarind 32·5 gms., Chilli powder 5 gms., Condiments 8 gms. (Mustard and Black Gram), Onions 25 gms., Cooking Oil 1 table spoon, Salt to taste.

Method.—Fry the condiments and sliced onions in oil till brown. Add tumblerful of tamarind water and sliced mango, and boil for about 5 minutes. Add chilli powder, salt and fish powder, and continue boiling till well cooked.

4. *'Kara Kolambu' with Tamarind and Fish Powder*

Ingredients (for 4 persons).—Tamarind 75 gms., Fish Powder 50 gms., Chilli Powder 5 gms., Condiments 8 gms., (Mustard and Black gram), Onions 25 gms., Cooking Oil 1 table spoon, Salt to taste and water as required.

Method.—Fry the condiments and sliced onions in oil till brown. Add the tamarind water, salt and chilli powder. Bring to boil, add the fish powder and more water as required and continue boiling till it is well cooked.

5. *'Koottu'*

Ingredients (for 4 persons).—Green plantain 4 ozs., Bengal Gram dal 90 gms. (half ollock), Fish Powder 50 grms., Onions 3 ozs., Green Chillies, 10 gms., Condiments 1½ table spoon, Cooking Oil 1 table spoon, Salt to taste.

Method.—Slice the peeled green plantain and boil in water. Add Bengal gram dal, cooked separately, and chopped onions and salt and mix well. Add fish powder and water as required and boil together till well cooked. Season with fried condiments.

6. *'Kara Kolambu' with Fish Flour, White Radish and Tamarind*

Ingredients (for 4 persons).—White Radish 200 gms., Onions 25 gms., Tamarind 50 gms., Fish Flour 50 gms., Green Chillies 5 gms., Chilli powder 8 gms., Condiments 8 gms., Groundnut Oil 1 table spoon, Salt to taste.

The Method similar to No. 3 above.

These recipes were repeatedly tried out in the Laboratory, and the quantities of ingredients and the cooking time adjusted, for best results. They were then commended for use suitably adapted in the different institutions in Madras and Madurai, selected for trials of the acceptability of fish flour.

II. Sample of the fish flour was also analysed in the Nutrition Laboratory with results as under :

Moisture 8% , Protein 61%, fat 0·1%, Minerals (Ash) 26·6%, Calcium 7·9%, Phosphorus 4·4%.

III. *Selection of Schools.*—The choice of schools was limited to those with attached boarding houses, and where fish, fresh or dried, was a common feature in their diet schedule. The willingness to co-operate in the trials was also another special consideration. The hostel wardens were first apprised of the immediate objective of the trials *viz.*, to see if the children will readily accept foods with added fish flour and whether they would develop any dislike for such foods after continuous use for some weeks and of the eventual advantages.

The Schools selected for the trials in Madras were :

1. Christ Church School, Mount Road.
2. Deaf and Dumb School, Mylapore.
3. School for the Deaf, Dumb and Blind, Tynampet.

No special funds were available for the trial of any special preparations like cakes, vegetable soups, breads, 'Chapaties' 'Cutlets', etc., on the lines of work done in Santiago, Chile (South America) by Dr. A. Vergara. Therefore the trials were limited to the incorporation of fish flour in required quantities in some one of the commonly used curry preparations. Of the type of one or other of the recipes shown earlier, distribute them as often as tolerated, observing the reaction of children from time to time in respect of the taste, flavour, appearance, consistancy, etc., of the fish flour added. As the fish meal has a tendency to settle down on standing, special care was taken to stir the mixture well during service.

IV. *Intervals of trials.*—The fish meal curries could not be given daily in any of the institutions, as the wardens of hostels thought it best to try it only on their usual fish days, or in any case, not more than 2 or 3 days in the week. Even this arrangement was not followed very regularly as the children desired to have the fish meal preparations at longer intervals.

The details of trials in the Schools at Madras were as follows :

School No.	Period of trial	Children fed daily	No. of trial days	Average quantity of fish flour consumed per day per child in grms.	Total quantity used in the trial in lbs.
1	5-10-55 to 14-12-55	120	30	8.8	70
2	1-10-55 to 26-4-56	100 for 80 days.	93	7·7	140
3	1-10-55 to 21-4-56	23 for 13 days	88	7·2	280

N.B.—1. Christ Church School, Mount Road.
2. Deaf and Dumb School, Mylapore.
3. School for Deaf, Dumb and Blind, Tynampet.

'Kara Kolambu' was the favourite preparation accepted as vehicle in all the three institutions. This is a popular savoury preparation which on account of its pungency characteristic and flavour can very effectively cover other tastes or off-flavours.

The recipes of the particular 'Kara Kolambu' preparation which was most favoured in each of the three institutions is shown below :—

1. CHRIST CHURCH SCHOOL, MOUNT ROAD

Recipe for Kolambu for 120 *Children*

Fish Flour 27 ozs., Tamarind 9 ozs., Chillies dry 37·5 ozs., Coriander Seeds 25·0 ozs., Coconut 24·0 ozs., Turmeric 2·5 ozs., Mustard 2·5 ozs., Garlic 2·5 ozs., Onions 50 ozs., Gingelly Oil 5·0 ozs., (Dry Mangoes 120 ozs./ Brinjal 250 ozs./Radish white 250 ozs.) any one each day. Water 10 Madras Measures (or 3·5 gallons), Salt to taste.

Conclusion.—1. Fish flour at about 8 gms. per child per day incorporated in the savoury curry preparations in common use, was acceptable to the children from the standpoints of its appearance, taste, flavour and consistency. The children did not however relish preparations with larger quantities of fish flour. They did not also relish these fish curries more than once a day and not more often than three times a week, in any of the institutions. The trials in the three institutions in Madras City lasted for 9 weeks, 27 weeks, and 27 weeks, covering 30 days, 93 days and 88 days, respectively of actual distribution of fish flour. No particular dislike was envinced in two of the institutions till the end of the trials, but in the third (Christ Church School, Mount Road) there was an inclination to discontinue the trial after about 9 weeks, and it did not want any more supplies of fish flour.

Trials at Madurai.—500 lbs. of fish flour received was distributed as follows from 10th August, 1955 to 28th February, 1956.

Places of trial No.*	Period	Total quantity	No. fed per day	Average quantity per child per day	How used
		lbs.		gms.	
1	August 55—22 days	71	50 children.	31	In mid-day meal.
2	August 55—22 days . .	71	50 children	31	Do.
3	September 55—30 days . .	71	35 children	33	Do.
4	August September 55—52 days .	150	64 children	20	Do.
5	February 56—29 days . . .	95	25 families.	15 (per member)	Do.
6	December 55—31 da,s . .	30	30 families.	13 (per family).	..

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*1. Kalladipatty, 2. Meenachipuram, 3. Y.M.C.A., Madurai, 4. Kilaiyur, 5. Vellaikundaram, 6. Alwarpuram, Harijan quarters, Madurai, were the places where trials were conducted.

The curry preparations in which the addition of fish flour was best liked was the following :—

(1) Tamarind 12 ozs; (2) Dry Chillies 3 ozs.; (3) Coriander seeds 3 ozs.; (4) Groundnut oil 4 ozs., (5) Onions (Chopped) 3 ozs.; (6) Mustard one spoon ; (7) Black Gram Dal one spoon; (8) Fenugreek seed one spoon; (9) Fish flour 1 lbs.; (10) Dried mangoes 24 ozs.; (11) Turmeric 9·5 ozs.; (12) Salt to taste. (For 50 children).

The Dried Mango was soaked in about 60 ozs. of water. The condiments (6-8) were roasted in oil and the chopped onion was fried till brown. Then the soaked mango solution was poured and allowed to boil. Dried Chillies, Coriander seeds and turmeric, were ground well and mixed with tamarind and fish flour in about 3 Madras Measures (1·2 gallons) of water and poured over the boiling mango solution. The boiling is continued for half an hour in closed vessel. Curry leaves were added towards the close.

Vegetables, white radish, yam (ordinary), tomato, brinjal and potato were also used.

This preparation was found acceptable in all the places in Madurai where the fish flour was distributed.

APPENDIX C-IX

Plan of Operation for an Expanded Nutrition Programme in Uttar Pradesh

(1) During the two years of the programme, 750 village units will be established covering a population of approximately 3,75,000.

(2) Generally the blocks selected will be those in which primary health centres and junior high schools with extension wings exist or are to be established under the departmental schemes.

(3) *School Gardens.*—Under this project, the Government will intensify efforts to establish school gardens. During the first year 300 such gardens should be established @ 4 gardens per block in 76 blocks and during the second year 300 additional gardens at the same rate in 75 new blocks. Gardens will vary slightly in size according to the availability of land in the vicinity of the school. The average rural school has 50 to 75 pupils for whom a garden of one to two acres may be developed.

(4) The Government will provide from the various farms and nurseries already existing under the management of the Agriculture Department of blocks, grafts and saplings and seeds for fruit and vegetable cultivation. UNICEF will supply seed packages of improved vegetable varieties in accordance with Article VI.

(5) The Agricultural staff posted to blocks with the help of the Nutrition Division of the Medical and Health Department and the Directorate of Fruit Utilization will advise and assist schools in planning systematic school garden programmes. They will supply the schools type plans for the cultivation of quick growing fruits valuable for their vitamin content such as papaya,

guava, and banana, and of a variety of vegetables which when cultivated in different seasons, can ensure a continuing supply almost throughout the school year.

(6) Students will tend these gardens as a routine part of school activities under the supervision of staff members. The bulk of the produce will be made available to the students for consumption as part of mid-morning meals. In those schools where the scheme of mild-day meals is in operation, fruit and uncooked vegetables (tomatoes, carrots, radish, etc.) will be used to supplement the milk on the days on which cooked meals are not served. During vacations, the gardens will be attended by voluntary villagers organised by the local School Committees.

(7) All schools selected for participation in this project will be properly sanitated. A regular source of water for gardens can be made available in most areas of Uttar Pradesh by means of tube-wells, which, in co-operation with the rural health programme, will serve the dual purpose of a safe drinking water supply and garden irrigation.

(8) *Training and Nutrition Education of the Public.*—The Government, assisted by FAO and UNICEF, will undertake a comprehensive training programme covering various categories of personnel at State, Block and village level who will participate in this project. Women Welfare Wing of the Social Welfare Department will extend its co-operation and services in the popularization of this programme.

(9) To promote the development of school gardens 500 teachers or selected villagers will require training. There will be 300 trainees in the first year and 300 in the second year. They will be brought in suitable groups from villages to the training centres and will be given training upto 30 days for teachers and for 45 days for others. During the period of training, trainees will be paid a stipend of Rs. 3 per day for teachers and Rs. 2 per day for others upto a maximum of 45 days. UNICEF will provide these training stipends in accordance with Article VI.

APPENDIX C-X

Experimental feeding to combat malnutrition among pre-school children—I.C.M.R.

A one-year programme of the Indian Council of Medical Research to study the comparative values of different low-cost protein foods to combat protein malnutrition among pre-school children started in October 1956 in the Poonamallee Health Unit, was compared, during the year. The above programme was organised by the Nutrition Research Laboratory, Coonoor, in co-operation with the Nutrition Bureau of the Public Health Department and the Central Food Technological Research Institute, Mysore. Under this programme, four groups of children under five years, each about 50 strong, were under study at Melacheri, Nazarthpet, Kunrathur and Kilacheri, around Poonamallee. Three of these groups were fed each with a different type of protein-rich foods and the fourth group was observed as a control group. The following are the three types of protein foods served:

(i) Roasted bengal gram flour and skim milk powder and brown sugar in the proportion of 8:2:1.

(ii) Low-cost protein food mixture of groundnut flour and bengal gram flour in 3:1 proportion, with lucerne calcium phosphate and brown sugar.

(iii) Reconstituted skim milk, in quantities corresponding in protein value to the daily ration of items (i) and (ii).

The skim milk powder required was supplied by the Public Health Department from the gift stock available, while the low-cost protein food mixture was received from the Central Food Technological Research Institute, Mysore. A report on this trial was published by the Indian Council of Medical Research.

Field Investigations

Acceptability tests with feed yeast and fish flour.—Acceptability tests with feed yeast were conducted by the two nutrition units at Gandhigram and Poonamallee. A quantity of about 1,970 lbs. of gift feed yeast received from the Directorate General of Health Services, New Delhi, was used for these tests. In Gandhigram Community Project area, the tests were undertaken among 101 families in two villages and among the children in one school. The families discontinued taking yeast after a few weeks, but the test in the school lasted for three months. 'Rasam' and 'sambhar' were the vehicles in which the yeast powder was mostly taken. It was noted that quantities of yeast powder over 1/3 ounce per day per head were not easily tolerated. In Madras, the acceptability tests were conducted in the Poonamallee Health Unit area among 59 families in two villages. Some of the families gave up early and only 35 families continued taking yeast regularly for about five months. Here also the yeast was taken with 'sambhar' or 'rasam' as such dishes effectively cover the taste of yeast powder. The average quantity of yeast powder used per head per day in these families with 0·65 oz. though smaller quantities of 0.25 oz. and upwards were tried initially in all the families. No signs of intolerance were observed during these trials. Though improved appetite was generally claimed, improvement in respect of height and weight of the beneficiaries was not conspicuous. Considerable improvement was, however, observed in all cases with angular stomatitis and glossitis.

APPENDIX C-XI

School Feeding Programme—Some suggestions by the Joint Secretary, Ministry of Community Development & Cooperation (Dept. of Community Development), New Delhi

There are approximately 5,000 children attending primary schools in each Community Development Block. As the country has been divided into 5,000 Blocks, there should be approximately 2½ crores of children attending primary schools. There are 2,709 Blocks in operation at present, and by the end of the Second Plan period, the total number of Blocks in operation will be about 3,111. The remaining Blocks will be allocated by the end of 1963. If a sum of Re. 0.06 were to be earmarked for each school going child per day for a mid-day meal, the total cost per pupil would work out to Rs. 14 per year. This has been calculated on an average of 220 schools working days. If all the 2½ crores of children were to be given a mid-day meal, the total cost would come to Rs. 35 crores per year. This seems to be a huge amount, but will pay a very good dividend in improving the health of the nation. If 50 per cent of this expenditure was to come from people's participation in the shape of cash or kind, it would be a very good proposition.

It is likely that all the States will not be able to embark on this gigantic programme for the whole State to begin with—in that case, a phased programme could be chalked out extending to five years of the Third Five Year Plan, so that by the end of the Third Five Year Plan, every State would be in a position to arrange for a mid-day meal for all the children in the Primary Schools. Regarding the question of phasing, each State will have to draw up its own programme according to the availability of resources.

Participation of the parents is absolutely essential in a programme of this magnitude. Therefore, it is suggested that the execution of this programme be handed over to the Mahila Samitis under the overall supervision of the Panchayats and Zila Parishads. During visits to some Blocks in the country it has been noticed that this programme has worked very well where the village women have taken up this programme. These women have not only collected a handful or two of foodgrains from each house but prepared the whole meal and served it. The foodgrain has been mixed with UNICEF skimmed milk powder and sometimes, in addition, with vegetables and pulses. As compared to this, there is a picture of another area where UNICEF skimmed milk powder has been lying for over a year without being distributed, because the teacher had no utensils and no budgetary provision for the fuel to boil the water for liquification of the powder.

With the establishment of Panchayats and Block Samitis in a number of States, it is suggested that school feeding programme should be entrusted to these organisations.

In the light of the experience gained, it is noticed that a programme which is likely to meet needs of the situation may be developed as follows:—

(a) The Panchayat in the village must be first educated in its responsibility in the matter and must decide to take the responsibility of feeding the children in schools. Unless the Panchayat is convinced in this matter, the scheme is bound to fail.

(b) Once this is decided that there must be a small Committee of the Panchayat to administer the scheme. This Committee may usefully include the office bearers of the local Mahila Mandal, or if there is no Mahila Mandal, the local women leaders.

(c) The Committee will have to assess the requirements for the year and all materials to be locally collected; in particular grain, pulses, etc., should be collected locally during the harvest season. The responsibility for this collection should be taken by the Panchayat which will also arrange for its storage and safe custody.

(d) The Panchayat should arrange with the Mahila Mandals or with the local women leaders with regard to cooking and bringing the food to the school.

(e) To create consciousness about this programme among the members of the Mahila Samitis in the villages, the role of the Gram Sevak, Gram Sevika, Mukhya Sevika and Social Education Organiser cannot be over-emphasised.

(f) The role of the teacher is very vital in this programme, and he must be brought into this actively. The school teacher should be made responsible for arranging regular distribution of cooked food with the help of the staff as may be prescribed by the Panchayat.

Of course, it will be necessary for the purpose of giving guidance, a joint committee between the Departments of Health, Food and Education should be constituted at the State level and a similar one with the District Heads of these departments at the district level. Officers at the district level should maintain close liaison with the Zila Parishads and the Block Samitis.

With regard to the type of mid-day meal each State will have to work out its own menu with the guidance of the Officer-in-charge of the Nutrition Department of the State. In the early years of the programme, there will be advantage of the provision of UNICEF skimmed milk powder, but this cannot be available for all the time, and as such, we must consider some other suitable arrangements.

Provision of mid-day meal must be combined with health education of the children, so that they should appreciate the importance of nutrtion as one of the factors for improvement of positive health. Simultaneously, the subject of "nutrition" should be included in the syllabus for the training of teachers.

Cultivation of kitchen gardens and fruit orchards near the schools where land and water facilities are available can be constituted as a part of the programme. The Block Development Officers and the Agricultural Extension Officers of the Community Development Blocks will be ready to render technical advice for this programme. In some places, it may be possible even to develop some kind of fish culture. Fish could be available for feeding the children, particularly in areas where fish is consumed. Otherwise, it could be a source of income for the school feeding programme.

With the school feeding programme, the questions of provision of portable drinking water supply and sanitary latrines and urinals should also be taken up as factors for promoting positive health.

APPENDIX C-XII

Ministry of Education (F & B Division) Mid-day Meals for School Children by the Adviser, Primary Education

The objectives of this scheme are two:

(1) to improve the nutritional level amongst school children in general and, in particular, to make up the common deficiency of proteins, and

(2) to attract children to enrol themselves into schools and to induce them for regular attendance.

2. For realising these two objectives, it is proposed that mid-day meals should be provided to all needy children that attend primary schools. It would indeed have been very desirable if such meals could have been provided to all children. On financial and other grounds, however, it is not possible to do so in the near future. As a beginning in this direction, however, it is now proposed that mid-day meals shall be provided to all children that need them. Experience of such schemes which have been conducted on a voluntary basis in several parts of the country, shows that attendance at such level may be taken at 20 per cent of the total enrolment and that the average attendance of a child at 200 days in a year (out of about 240 days on which the schools are generally open in an academic year). The calculations made in this scheme are, therefore, based on the assumption that mid-day meals would be provided for 20 per cent of the children on rolls for 200 days in an academic year.

3. The total number of children in the age-group of 6-11 is estimated to be about 630 lakhs by 1965-66. Of these, about 330 lakhs of children are expected to be enrolled in schools in 1960-61, the last year of the Second Five Year Plan. An additional number of 180 lakhs of children is proposed to be enrolled in schools during the Third Five Year Plan and by 1965-66, the total number of children in primary schools is expected to raise to 510 lakhs. If 20 per cent of children are to be provided with mid-day meals, it follows that the number of children to be provided with such meals would be about 73 lakhs in 1961-62 and that it would rise to 102 lakhs in 1965-66.

4. It is proposed to introduce this scheme in the Third Five Year Plan. That is to say, it will be introduced in 1961-62 and will be continued throughout the Plan till 1965-66. On this basis the number of children for whom mid-day meals would be provided would be as follows:

Sl. No.	Year	Total enrolment in primary schools (in lakhs)	No. of children to be provided with mid-day meal at 20%
1	1961-62	366	73
2	1962-63	402	80
3	1963-64	438	87
4	1964-65	474	95
5	1965-66	510	102
		TOTAL	437

5. In Ceylon, the mid-day meal scheme has been tried on a very large scale for some years. The CARE has given it corn flour and milk powder free. With this assistance, the Government provides a mid-day meal of a bun (made out of 2½ oz. flour) and a pint of milk. The cost to Government works out roughly at Rs. 8 per child per annum and about 15 lakhs of children are given mid-day meals every day. The scheme that is outlined in the paragraphs that follow is based on this experience.

6. For the purpose of calculating the amount of wheat required, it is assumed that each child will need three ounces of wheat per day. This is slightly more than the amount of 2½ oz. of corn flour given in Ceylon. But, as we do not provide the pint of milk which is included in the Ceylon meal, it may be agreed that a provision of 3 oz. of wheat per child per day would be reasonable. On this basis and assuming further that the child would attend the class on 200 days a year, each child will need 600 oz. of wheat per year. On this basis, the amount of wheat required for this programme would be as follows:—

Year	Total No. of children for whom mid-day meals are to be provided (in lakhs)	Quantity of wheat required at 600 oz. per child per annum (in tons)
1961-62	73	1,22,202
1962-63	80	1,33,920
1963-64	87	1,45,638
1964-65	95	1,59,030
1965-66	102	1,70,748
TOTAL	437	7,31,538

7. The scheme will be worked out by the co-operation of the Ministry of Food and Agriculture, the Ministry of Education, the State Government and the local authorities in charge of primary education and the local communities.

8. The Ministry of Food and Agriculture would secure wheat free of charge from U.S.A. and other friendly countries who have surplus stocks of wheat. It would also further undertake the responsibility of delivering this wheat, free of transport charge at the headquarters of each district. The requirements of wheat in each district would be worked out by the State Government concerned and supplied to the Ministry of Food and Agriculture through the Ministry of Education sufficiently in advance to enable it to make the necessary deliveries of wheat in good time.

9. After the stocks of wheat are delivered at the district headquarters by the Ministry of Food and Agriculture, the State Governments (or local authorities in charge of primary education) would come into the picture. It would be their repsonsibility to ascertain the requirements of each locality, to obtain it from Government and to supply the wheat received to the different local communities. The expenditure required for stocking the wheat at the district headquarters and for its transport and distribution to the local communities would be borne by the State Governments or the local authorities in charge of primary education, as the case may be.

10. The local communities would thus get wheat free of cost and transport charges, delivered to them according to their requirements. They would then be expected to contribute the balance of the expenditure required for conversion of the wheat into flour, for baking the bread and for supplying the oil and vegetables necessary for the meal. The wheat given by Government would be treated as grant-in-aid from the State and the funds raised by them for the items mentioned above would be regarded as local contribution. It is expected that, ordinarily, the ratio of State contribution to the local contribution would be 60:40. The local communities would also be required to maintain prescribed registers regarding utilisation of wheat supplied. Periodical checks over these would be provided by the Officers of the Education Department and the Block staff (in all areas where the Community Development Blocks have been created).

11. The total quantum of wheat required for the scheme is indicated above in paragraph 6.

12. This preliminary note gives only a broad outline of the scheme as it is proposed to be worked out. Further details would be elaborated on receipt of information as to the quantity of wheat that would be available for this purpose.

13. Needless to say, this can be a very important scheme for the development of primary education in the Third Five Year Plan and that it would make a very great impact on the health of the rising generation as well as on its education.

(Sd.) J. P. NAIK
24-3-60.

APPENDIX C-XIII

Supply of School Lunch Programme in Schools

BY

A. R. Sundarajan, All-India Institute of Hygiene and Public Health Calcutta.

Introduction

It is agreed that some type of food must be provided to children attending schools. The question that arises firstly is the quantity of food to be served. This will depend essentially on whether the school works for part of the day or for whole day or in other words, whether the school works for more than 5 hours or less than this period. If the children are there for shorter period then they must be provided with snacks whereas in the other case, they will have to be provided with a lunch. Essentially the difference between the two is in respect of Calories. Broadly speaking, school lunch will have to provide approximately one-third of the total calorie requirement while the school snacks need provide only about one-fifth of the total Calories. However, so far as the qualitative aspect is concerned, there will be no difference in the two. Broadly they have to provide the nutrients which are poorly supplied in their homes, more particularly protein with an emphasis on animal protein, minerals such as calcium and iron and some of the vitamins. It is proposed to deal with the two types of food separately.

School Lunch

As has been already mentioned this should provide approximately one-third requirements of Calories of the child. The food should be prepared in such a way that it can be easily handled as in the form of briquettes so that the children can be given their requirements of Calories depending on their age-group blocks. It is proposed to discuss below how these calories are to be provided. Broadly speaking, the food containing the Calories may be divided into two portions. The first will be a "Pre-mix". This will be supplied by the Central Government through the regional centres which will be responsible for its preparation. Emphasis will be laid on the preparation of this food in meeting the requirements in respect of protein, minerals and vitamins which are known to be in sufficient supply in that region. The attempt will be to provide about 50 per cent of the day's protein and mineral requirements and almost the full requirements so far as the vitamins are concerned. This portion of it will be financed entirely by the Central Government. The other part of the food providing approximately two-third of the Calories will have to come from the State Government/private agency including parents of the children. This portion will be made up of locally available food. However, emphasis should be laid on trying to popularise foods which are nutritious and which are not commonly used, *i.e.*, in rice eating areas attempt should be made to use wheat to replace the rice either in part or fully. The materials supplied by the regional centres will have to incorporate with the locally made up food so that they can be cooked together into suitable preparations which are attractive and palatable. It is felt that the cost of locally available food will not be very much and therefore, should not be difficult to obtain. In this connection, emphasis should be laid on suggesting suitable menus so that the lunches vary from day to day and does not produce monotony. The "Pre-mix" food to be supplied from the regional centres may be considered as made up of three parts, namely, protein, minerals and vitamins. Each of these will be discussed in turn.

(a) *Protein.*—As has been already mentioned before the total amount of protein to be obtained should be 50 per cent of the daily requirements of the child Suitable combinations of vegetable protein preferably with a small amount of animal protein so that they supplement each other to provide all the essential amino-acids in proper proportion should be made. It is felt that the suggested recommended allowances as put out by the Nutrition Department of All-India Institute of Hygiene and Public Health may be adopted. In this connection it may be mentioned that the animal protein source may be different in the different regions. For example, in certain places, skimmed milk may be the source while in other places, fish powder may be used. In certain other places dehydrated meat or egg powder may serve the purpose. At the same time, when it may not be possible to include milk protein and there is likely to be religious objection to addition of other animal protein, then suitable combination of vegetable proteins will have to be worked out as has been already done at the Central Food Technological Research Institute, Mysore. Where necessary further researches may be carried out on the same lines.

(b) *Minerals.*—The most important minerals which are to be provided are calcium and iron. Diet surveys have shown that the consumption of calcium is about 300 mg. per consumption unit per day. Therefore, provision of some 300 to 400 mg. of calcium in the Pre-mix food will be of great value. With regard to iron, it may not be difficult to provide the requirement in the form of a suitable ferrous salt.

(c) *Vitamins*—Diet surveys have generally indicated that the common vitamin deficiencies are due to those of Vit. A., Thiamin, Riboflavin, Naicin and Vitamin C. Bone deformities in school children such as scoliosis, kyphosis, etc., are also found to be fairly common. Further there is also evidence that calcium is better absorbed and utilised when there is a sufficiency of Vitamin D in the diet. Vitamin D is also able to off-set the ill-effects of a lopsided Ca:P ratio in the diet. Since the main source of Vitamin D for our children is the ultra-violet rays of the Sun, it should not be considered as a very dependable source. Accordingly, it is felt that some Vit. D should also be provided. Since all the above vitamins are now available synthetically and are also very cheap, this vitamin also be incorporated in the diet. Diet surveys generally indicate that the quantity of Vitamin A (including carotene) consumed per adult man per day is only 700 I.U. as against the requirement of something of the order of 4,000 I.U. of Vitamin A activity. Therefore, it is felt that all the above mentioned vitamins should be provided to the extent of about ½ the recommended daily allowance. In the case of Vitamin C, it is very difficult to say the present position. Diet surveys have shown that pressure bleeding gums are fairly common amongst the school children. Therefore, it would appear that it is safe to provide certain amount of vitamin C also in the 'pre-mix'.

The School snacks programme

Here it will be more or less on the same lines of that of the school lunch programme except that the total Calories provided will be less as already indicated. The same 'pre-mix' as has been used for the school lunch programme may be used for this also.

Details of recipe

With regard to this it is felt that the country may be broadly divided into four or five regions, since the types of food consumed locally are different. Further certain laboratories in each of the different regions may be made responsible for providing the 'pre-mix' that are needed for that region. These regional laboratories also may prepare different types of recipes based on locally available foods which will be acceptable to the people of that region. It is suggested that the school health committee may give a broad directive and a few typical samples of menus.

Preparation of the lunches in the schools

This will have to be done by the teachers and students by turn. While it may be permissible for the school authorities to engage one or two cooks for the actual preparation of the more difficult items there is no reason why the students should not themselves distribute and thus reduce the cost. The distribution of these lunches should be in the class room itself instead of asking the students to queue up in some other place. One of the important things to be provided is sufficient water. While dealing with school sanitation, the Committee may have envisaged the possibilities of providing water. It is felt that special emphasis should be placed on the quantity of potable water to be made available per child in the school so that he is able to get his requirement. An overall provision at the rate of 2 gallons may be enough. This point will be appreciated if the Committee members visit any one of the larger schools in Calcutta during their tiffin time when it will be seen that the requirements of water of the children are not available in sufficient quantity within the recess time allowed. Sometimes it is said that a tube-well has been provided and it should serve the purpose. In my opinion it is much more necessary to provide a small tank by the side into which water is pumped and the students have it ready for their needs, *i.e.*, in other words, the school management must be compelled to provide suitable tanks for storing water.

APPENDIX C-XIV

mportance of Food Supplements in Improving the Health of School Children

BY

Dr. V. Subrahmanyan, Director, Central Food Technological Research Institute, Mysore.

Dr. M. Swaminathan, Assistant Director and Head of the Division of Dietetics in this Institute, is already a member of the Committee and the views expressed by him largely convey our views on the subject. It may, at the same, be pertinent to emphasise certain aspects which have a bearing on the general nourishment, physical well-being, resistance to the common ailments and infection and also the growth of the children.

Nutritional deficiencies are largely related to the prevailing pattern of dietary and are to be seen in the lower as well as the higher income groups.—In our country, dietary patterns have been set up largely on the basis of availability of certain categories of foodstuffs and also certain environmental factors. The traditions that have been set up have continued from one generation to another and have not been much affected by economic factors. Thus, in any part of the country, the people who are in affluent circumstances do not generally eat a different type of food from those coming within the lower income groups. Some sections of such people do consume more milk, meat, fish and eggs and other protective foods, while a high percentage, coming in the same economic class, utilize their extra resources for consumption of more sugar and fat which make the food more tasty, but do not necessarily improve the nutritive value. As a result of this, we have now got a pattern of physical development which is almost of the same order for each region. Over a considerable part of the country the food is of rather poor quality and is deficient in regard to the essential growth-promoting constituents like proteins, minerals and vitamins. The health and activity of the vulnerable groups are most affected by poor quality diets and the pre-primary and primary school children of the age-group 4-12 come in this category. If we are to build up healthier and stronger citizens for the future, the school health programmes should give considerable importance to the problem of overcoming the dietary deficiencies to as large an extent as possible.

Deficiency of even a single essential food may act as a limiting factor to growth.—There is a considerable amount of scientific evidence to show that, with the provision of protective food components, the children grow taller and put on more weight and generally develop greater physical stamina and resistance to disease than they would otherwise be able to do. In this connection, it may also be noted that the deficiency of even a single essential nutrient like calcium or vitamin 'A' may act as a limiting factor of the growth if the other nutrients are present in the diet in adequate quantities.

In addition to the mid-day meal, the children should also get a supplement that will meet the normal deficiencies in the whole day's diet.—It is common knowledge that, over a considerable part of our country, there is multiple deficiency and if we are to produce some positive and consistent improvement in the health of the children, all the items should be taken care of. In some cases, it may be predominantly protein, while, in some others, it may be calcium and/or vitamin A. In some others, the quantity of the available protein may be so poor that the actual requirement in that form may be much more than what would be necessary with a protein which is properly balanced in regard to the essential amino acids. There are also deficiencies of some minor elements, as also certain vitamins of the B group. There may also be individual variations in regard to the requirement of children in the same area. In order to cover all such possible cases, the best course will be to provide a supplement that will provide fair quantities of all the essential nutrients and which, under no conditions, is likely to be excessive. Speaking broadly, it should be our endeavour to provide for each school child about 20 g. of a reasonable good quality protein, 100-150 mg. of calcium, 1000-1500 I.U. of vitamin A, small quantities of minerals like potassium, magnesium and iron, as also some minimal quantities of vitamins B1, B2 and if possible, B12.

Food that is reasonably filling and the supplement should both be provided.—While providing the above supplements, it is at the same time recognised that children especially from low income groups are often in need of extra calories. There is also the essential feelings of satisfaction which is derived through consumption of food which is filling. It is generally agreed, therefore, that as the schools can take care of only one meal a day, it should be reasonably filling and, at the same time, contain adequate supplements which will make up for the deficiencies in the entire day's diet. Such a meal should be provided at a very small cost as the necessary resources may not be available over a large part of the country. 20-24 nP. per meal per child may be a reasonable figure, but in many parts of the country, it may be necessary to come down to even as low a figure as 10-12 nP. per child.

Among the available supplements, the Multipurpose Food is cheap and conforms to the nutritional requirements. Its use deserves to be extended to most of our States. The raw materials are easily available.—With the above as the background, the food should naturally consist of two parts, one conforming to the local dietary patterns, which may be regarded as the bulk food, and the other component providing the essential supplements. The two parts may be combined together or even taken separately, one after the other. In the latter case, care should be taken to provide the supplement in some tasty form with some variety, so that the children may not cloyed with the same type of supplementary food. Even a change from sweet to savoury or a modification of the flavour may provide the desired variety. Scientific work done in the country and particularly at the Central Food Technological Research Institute, Mysore, has shown the possibilities of using different types of food supplements. They have been discussed in the note submitted by Dr. M. Swaminathan. Among these, the one that has already proved successful is the Indian Multipurpose Food which can be produced on a large scale and made available at a comparatively low cost. The Madras Government has shown the way in regard to the use of this product, which is now forming part of the regular component in the mid-day meal of about 2½ lakhs of children. It is expected that within about a year's time, this supplement will be available to over a million children in that State alone.

The Central Government has provision for setting Multipurpose Food plants.—The Central Government is keenly interested in assisting in this programme and they have already made liberal provision for putting up plants for the production of Multipurpose Food during the Third Plan period.

The above should be looked upon only as a beginning in an important line which will have profound effect on the health of the nation. The Multipurpose Food itself is capable of modification so as to fit in with the raw material available in any region. It is expected, however, that over a considerable part of the country, the composition which is now being used in Madras, can be easily produced and made available.

While it is desirable to start with the provision of one particular type of supplementary food, the School Health Committee should also have adequate resources to try out other types of supplements which would also offer useful possibilities. In dealing with such products, the necessary background of scientific evidence, as also consumer appeal, should be taken into account.

The protective supplement in attractive form will be needed by all the children including those from the higher income groups.—Before concluding, attention may pertinently be drawn to the need for correcting a general impression that such programmes are meant for only the children from the low income groups. The higher income groups also suffer from deficiencies and imbalances. Whatever supplements are provided should be such as to apply to children hailing from all economic groups. Even those who are considered to be well-fed can generally benefit through the consumption of such supplements, which should be made available in attractive forms. There will also be a wholesome moral effect if all children can share the same type of mid-day meals which would be satisfying, and at the same time, nourishing.

The Committee, will no doubt, be concerned with the resources for starting such a programme on a nation-wide scale. Even if it is not possible to adopt the programme in every State in the country, there should be at least fair sized pilot schemes which can be subsequently expanded to cover the whole region. The beginnings in any case will have to be comparatively small, but we have no doubt that the results will ultimately warrant the programmes being stepped up on a nation-wide scale.

Co-operation from the Central Food Technological Research Institute, Mysore.—The Central Food Technological Research Institute is not only keenly interested in the subject, but has already actively participated in a large number of school-feeding and other institutional programmes. If some of the present plans take shape, the Institute itself may soon be in a position to initiate further school-feeding programmes with the Multipurpose Food as a protective food supplement. Trials will also have to be carried out with other similar supplements, as also with new formulations that would be of high nutritive value. To the extent that is possible, and with such additional facilities that can be provided, the Institute will be glad to assist in the programmes that may be recommended by the Committee. The School Health Committee, should, in turn, see to the establishment of some permanent organisation that will see to the active pursuit and implementation of its recommendations as approved by the Government.

APPENDIX C—XV

Outline of National Nutrition Programme for School Feeding

BY

Dr. (Miss) Radha Karnad,

Directorate General of Health Services.

Diet and Nutrition surveys carried out in this country during the last decade have indicated that the average Indian diet is ill-balanced and lopsided due to lack of essential nutrients and malnutrition is prevalent among large sections of the population, especially growing children. The results of surveys have shown that protein malnutrition and deficiencies due to vitamins A, B Complex, & C, Calcium and Iron are prevalent to a large extent among growing children. Considering that nearly 100 million children out of a population of 400 million in our country are affected, this has no doubt lowered our national health.

Why School Lunch?

It is well-known that the health of the children is the wealth of the Nation. Intensive measures should, therefore, be taken on a country-wide scale for combating malnutrition by organising supplementary feeding programmes for pre-school and school children. Schools are one of the best media for organising feeding programmes, as a large number of children can be handled under controlled conditions and results can be assessed.

Provision of lunch to children is important from several viewpoints. Many a times children attend school without a good breakfast and there is a long interval by the time they get a substantial meal at night. The result is that they are not able to concentrate on their studies during school hours. The average school child in India is poor in physique and health and has lost the instinct of brightness and energy for work and play.

There are several reasons why the child is hungry at school. Some times the children's parents are economically so backward that they cannot afford to give the child even a square meal a day. Sometimes the working mother may not have the wherewithal or the time to provide the child with lunch while going to school. Many times the labourer mother has to work long hours outside the home and has hardly any time to attend to her several children.

School lunch is as important as lessons in the classroom. It has unlimited educational possibilities. It is part of an overall programme to help children grow better in mind, body and spirit. The children will learn pleasant table manners, habits of cleanliness, a spirit of brotherhood, discipline and civic sense. Besides getting nutrition education at an early age, lunch at school will keep away the children from the habit of eating unhealthy and infectious food from street hawkers and thus fall victims of infectious diseases. By eating together many food habits can be improved and will help to develop a democratic way of living. Children will also take to their homes menus that thave been made at schools, thus benefiting the parents also.

Any school lunch programme should be accompanied by periodical medical examination of school children, health and nutrition education medical aid and environmental hygiene in the school premises, in order to have the desired effect. Periodical medical examination will help in assessing the nutritional status of school children as a result of the school lunch.

A few important points for organising school feeding on a national basis in this country will be dealt with in the present note.

Distribution of milk vitamin tablets, cod liver oil and other food supplements to school children has been one of the major activities of the Nutrition Department in the D.G.H.S., Ministry of Health. Milk donated by UNICEF is being distributed to children in schools through the Directors of Health Services of States during the last several years. This has not only made the school children milk conscious, but has improved their health to a large extent. However, it is understood from the UNICEF Area Office that allocation of milk for school children will be considerably cut down after the current school year. The milk supply for pre-school children will continue.

At present there is no uniform pattern of school lunch programme prevalent in this country. There is only a skeleton service in some states for providing snacks and milk donated by UNICEF, depending upon State finances, availability of space in schools and other local conditions. These States are Madras, Bombay, West Bengal, Uttar Pradesh, Punjab, Bihar and Orissa. Facilities in the other States are almost negligible. In many of the schools there is no facility for cooking. In some of the schools, especially in the rural areas, even arrangements for safe drinking water and environmental sanitation are absent. A uniform pattern of school lunch programme on a National scale is, therefore, very necessary.

It would be useful if the school feeding programme already started by the State Governments are co-ordinated with the proposed national scheme for school feeding. Further, the expanded Nutrition Programme initiated by the UNICEF in some States, on the same lines as the Orissa Project, may also be collaborated. So far Orissa and Andhra Pradesh have finalised the projects. Punjab, Uttar Pradesh and West Bengal are finalising the projects. It is expected that other States will also start similar projects. Under this programme all the protective foods which are necessary for a school lunch, *viz.*, eggs, poultry, fish, vegetable, fruit and in some gardens in selected number of villages, will be distributed to schools with the help of voluntary agencies, village panchayats and Mahila Samitis. The UNICEF will further provide equipment such as pumps for tube-wells, garden tools, seeds and incubators needed for the production of foods and for safe water supply. F.A.O. would help in the practical training of Nutrition Officers and other technical personnel. In case the nutritious foods produced under the Expanded Nutrition Programme in various States are used for school feeding, the budget provision in the proposed lunch programme could be reduced to a large extent.

The medical and health personnel and Nutrition Officers working in the Primary Health Centres can also be utilised for nutritional surveys and medical examination of school children.

Early History

School lunch had its earliest beginnings in Europe. In England this was introduced on a national scale, where an Act was passed in 1906 for the provision of meals in schools and this gave the local school authorities the power to use school funds for providing lunch to children. As time passed, the School Feeding Programme in U.K. became more and more popular, and by 1952 more than half of the schools were covered. Today most of the children in U.K. get a glass of milk in school free, and a subsidised lunch consisting of boiled vegetables, salad, stake and pudding, costing a nominal sum. School feeding in U.K. is being operated through the County Councils and every school has a kitchen and canteen attached, where hot lunch is served to the children.

In the U.S.A., the School Lunch Programme was started in the beginning of the 20th Century, and in 1953 the U.S. Department of Agriculture reported that 34% of the elementary and secondary schools were covered. The school lunch programme in U.S.A. is organised with the help of Home Economists. A high standard of food and nutrition is maintained in the meals served to children. This is operated according to the conditions prevalent in the different States of the Americas.

Meals Pattern

There are different meals patterns prevalent in other European Countries depending upon availability, food habits of the different peoples and other factors. The famous Oslo breakfast consists of 16 oz. of whole milk 2 slices of whole wheat or Rye bread ; fat, cheese and vitaminised margarine and seasonal fruit such as orange, apple or carrot.

However, any school programme on a national basis in this country should be organised to suit Indian conditions prevalent in rural and urban areas and should take into consideration the food habits, cooking practices and meals patterns prevalent in the particular States, region or locality, as also the kinds of foods available in the different regions and the different types of fruit and vegetables grown in different areas. Best use should be made of what is available, taking into consideration the food value and the cost.

The essential pattern of a school lunch should be nutritious, palatable and satisfying. The home diet of many children in this country, whether they come from low or high income families, contains too many starchy foods such as rice and sweets and not enough of nutritious protective foods such as milk, vegetables, fruit and eggs. In the proposed school lunch menus these foods should, therefore, be emphasized, in order to make up for the deficiency in the meals served in the home. However, quantity should not be sacrificed at the cost of quality. The staple foods for giving the necessary energy to the child should be taken care of, in the first instance. Secondly, the minimum amount of protein, needed for the child's growth and building of tissues, should be included. Thirdly, the protective foods mentioned above, containing the essential vitamins and minerals should also be included.

In short, a balanced meal should include the following foods :—

(a) Two or three chapaties made of whole wheat flour, or two slices of bread.

(b) One ounce of *dal*, or sprouted pulse, or beans, supplemented with ½ oz. of multi-purpose food ; or one half boiled egg.

(c) Two ounces of cooked green or leafy vegetables.

(d) At least 10 ounces of milk, preferably served as a beverage, or in the form of 'dahi' or 'lassi'.

(e) Two teaspoons of butter or vegetable oil.

(f) dessert, consisting of fresh fruit (One ounce).

This is complete lunch sufficient to provide about 1/3rd of the child's daily diet requirements and may be served hot or cold, as a plate or tray lunch.

In selecting vegetables, emphasis should be laid on the yellow and green leafy variety. Among the leafy types mention may be made of 'palak' (spinach), 'methi,' 'chaulai' (amaranth), drumstick, 'muli' (radish) and green 'dhania' for garnishing and flavour. Among the yellow and orange variety of fruit and vegetables may be mentioned, banana, papaya, mango, guava, jack fruit, cashew, plum, tomato, carrot, pumpkin, etc., etc. It is important that a salad consisting of tomato, cucumber or beetroot, grated carrots or shredded cabbage with a dash of lemon and garnished with green 'dhania', be included as one of the items. Sprouted pulses can be substituted in the menus when fresh vegetable are not available, as they are valuable sources of vitamin 'C' and protein.

The fruit should include the juicy types also. Oranges and tomatoes deserve special emphasis. Bananas are, however, valuable supplementary food items in the menus, both from the point of view of economy and nutritive value. Besides, they are relished by children and can satisfy the appetites of young growing children. Bananas can easily be cultivated in the school gardens. One acre of banana trees yield approximately a thousand bunches a year. "A plantain a day" is thus a practicable ideal in school lunch programme. 'Amla' is a rich and cheap source of Vitamin 'C' and may be served salted or pickled, to conserve the vitamin 'C'.

In planning school meals the appearance and palatability should not be overlooked. Children will enjoy the meals if they are pleasing in colour combination, texture and flavour. In short, variety should be the spice of the school menus.

As already mentioned, a glass of milk is the only ideal food for children, though it should be supplemented with solid food for giving the necessary calories and for satisfying hunger. The cereal may be either wheat, rice, bajra or ragi, according to the region. This will give the necessary energy to the child, both for growth and physical activity. The universal protein deficiency of the diet in this country can be met by including 'dal' in the daily menu, supplemented with 1/3rd to ½ oz. of multipurpose food, which is a concentrated form of protein consisting of processed groundnut flour (75 parts) and Bengal gram flour (25 parts), fortified with calcium, iron and vitamins A, B1, B2, nicotinic acid and vitamin D. This can conveniently be cooked with 'dal' or chapaties. It supplies bulk for bulk about twice as much protein and three to six times as much vitamin B1, riboflavin and calcium as common pulses. It is also a rich source of vitamins A & D in which pulses are deficient.

Fish is an important source of protein, especially in coastal and riverine regions and should be made use of whenever available.

A large variety of fruit is cheaply available in the rural and urban areas in different regions, during glut seasons. These are bananas, papayas, mangoes, cashews, and jack fruits in the western, southern, north eastern, and eastern regions ; oranges and other citrus fruit and bananas in the central regions ; and guavas, plums, amlas, apples, pears, etc., in the northern region. These go waste in the areas where they are produced during the glut season and can be utilised in the school lunch programmes either fresh or in a preserved condition. As mentioned earlier, the foods produced under the Expanded Nutrition Programme in the school gardens in the various States can be utilised for school lunch.

It is understood that gift consignments of wheat may be available with the Ministry of Food for school feeding under P.L. 480. This may be taken advantage of in the proposed National School Feeding Programme.

In the proposed scheme, provision of meals or snacks to children at school to suit Indian conditions may be divided into the following three categories, since there may not be facility for cooking in all the schools :—

(1) Cooked lunch.

(2) Ready-to-serve lunch.

(3) Snacks and a glass of milk (skim milk, toned milk or whole milk whichever is available).

The type of lunch chosen will depend upon available financial resource as well as facilities for cooking, building, equipment, etc.

Table I

Cooked lunch based on different cereals and millets and supplemented with protective foods

The following ingredients are necessary for a cooked lunch suitable to Indian conditions. The type of dishes and cooking practices may be designed according to the region where it will be operated.

	Quantity (ounces)
Cereals and millets*	2
'Dal' or whole Pulses† at (half the quantity as germinated pulses)	1
Vegetables-leafy	2
Vegetables-non-leafy and root	1 to 2
Curds†	2
Vegetable oil	1/4
Fruit (mango, guava, papaya, banana, tomato, amla, etc.)	1

*One or more of the following can be included—wheat, rice, jowar, ragi and bajra—depending on the region and food habits of the children.

†One ounce of fish may be included in place of pulses in regions where fish is available at low cost. Incorporation of half an ounce of Indian multipurpose food (costing about 1½ nP.) in place of 1/3rd ounce of pulse will provide extra amounts of protein, calcium, vit. A, D & riboflavin. It will be desirable to increase the quantity of milk or curds in diet if finances permit.

Table II

Ready-to-serve lunch

	Quantity (ounces)
Skim milk or toned milk	8
Bread or bun (equivalent to one ounce wheat)	one serving.
Beaten rice, puffed rice or puffed millets	1
Puffed Bengal gram, roasted groundnut or roasted gram	1/2 to 1
Salad (tomato, carrot, cucumber, beet root, etc.)	2
Fruit (banana, guava, mango, papaya or tender corn (roasted)	1

Note:—If one of these items is not avaible, two ounces of one item can be given.

Table III

Snacks

Snacks to be served with a glass of milk and seasonal fruit	oz.
Reconstituted skim milk or toned milk or whole milk	10
Snack	
Chikki' or MPF Sweet or enriched biscuits	1
Fruit	1
Any one of the following snacks may be included in the above snack lunch :	
(a) *'Chikki'* :	
Bengal gram	1/2
Groundnut	1/2
Jaggery*	1/2
(b) *MPF**Sweets* :	
Indian Multi-purpose food	1/2
Jaggery*	1/2
(c) Enriched biscuits**	1

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*Palm-gur which is available in large quantities, in regions where palm trees grow, is one of the best sources of nutritious sweetening agents which should be made use of in the preparation of 'chikki' or MPF Sweet.

Palm-gur is rich in Calcium, Iron and also contains trades of vitamin 'C' and gives a caloric value as high as that of gur made from cane. The Palm-gur Adviser, All-India Khadi and Village Industries Commission, Dahanu, may be contacted for arranging to supply the requirements of palm-gur at reasonable rates. Consumer trials with palm-gur recently carried out with school children have given excellent results. Apart from this, use of palm-gur would mean the utilisation of a nutritious food which is not fully utilised at present.

**MPF and Nutro biscuits are now available with the Meals for Millions Association of India. One of the foremost Biscuit Companies in the country have undertaken to prepare Nutro Biscuits on a large scale.

The minimum cost of lunch given in Tables I, II and III can be calculated at a flat rate of 19 nP. per lunch. If it is proposed to give lunch to all the primary school children free of cost, the approximate annual cost of feeding 18 million children for 180 days in the year will work out to about Rs. 607.50 millions. If the foods produced under the Expanded Nutrition Programme are made use of in the school lunch, the cost mentioned above can be considerably reduced.

As regards ready-to-serve lunch mentioned in Table II, the items can be arranged through a contractor and sent to the school premises. As regards salad and fruit, these items do not require any cooking. It is presumed the skim milk or toned milk can be made available through the UNICEF or under the milk scheme of the State Government concerned.

The items of lunch mentioned under Table III include one snack (mentioned under either at (b) or (c), a glass of skim milk or toned milk and seasonal fruit such as banana or slice of papaya, guava, mango, pear, jack fruit, etc. depending upon the region. Chikki can be supplied through a contractor, as is being done at present in the Bombay Corporation Schools. The MPF sweet and enriched biscuits can be arranged through the Meals for Millions Association of India.

The following figures give an idea of the materials required for providing full lunch and snacks to 19 million children on the basis that 1/3 will be given cooked lunch 1/3 ready-to-serve lunch and 1/3 snacks and skim milk.

Materials required	Tons
Bread or bun (in equivalents of wheat)	30,840
Beaten rice, puffed rice or puffed millets	30,840
Puffed Bengal gram or roasted gram	30,840
Multi-purpose food	15,420
Jaggery	15,420
Enriched biscuits	30,840
Cereals and Millets	61,680
Pulses	30,840
Vegetable oil	7,710

As regards the quantity of skim milk required for feeding those children getting ready-to-serve lunch and snacks, the figure can be estimated at 202.50 million lbs. for 12 million children for 180 days in a year (at the rate of 1.5 oz. per child per day, to be reconstituted into 10 oz. of liquid milk).

As regards 2 oz. of curds mentioned in the cooked lunch under Table I on page 167, this can be prepared from reconstituted skim milk. The requirements of skim milk powder for preparing curds in the cooked lunch for serving 6 million children for 180 days in a year would work out to about 18 million lbs. Thus, the total quantity of skim milk required for the cooked lunch as well as for the ready-to-serve lunch and snacks for 18 million children works out to 220.50 million lbs.

The latest information from UNICEF Area Office indicates that though the free allocation of milk for school feeding will be reduced, it is not going to be entirely discontinued. We have, therefore, to make a request to UNICEF for allocating skim milk for the proposed programme.

A few words about the part played by school children in the execution of the school lunch programme. It is important that all in the school family old and young teachers and students, should work in co-operation to make the school lunch a success. Some will help with the planning, cooking and serving ; others with dish washing and marketing. Many will find jobs in the school garden—planting tending, gathering vegetables, storing and canning. Some will help to decorate the lunch room with pictures painted by the children themselves and flowers grown in the school garden. In short, all should feel that they are of real service to the community and understand that the programme is a great plan—local, state and national to help boys and girls become stronger and finer citizens.

The responsibility of financing and organising school feeding programmes should be that of the Government but the parents and school authorities should also co-operate. The well-to-do children can contribute towards the expenses, but those who cannot afford should be exempted from payment. Every child, however, will be entitled to have lunch and none will be singled because he cannot pay.

Particular mention may be made here of the methods of cooking, while preparing the lunch. The best part of the vitamins and minerals are sometimes thrown away and wasted because of incorrect methods of cooking vegetables and rice. Proper attention should also be paid to the retention of taste and appearance by avoiding overcooking and over spicing of food. Correct methods of cooking should, therefore, be taught to the staff by trained dieticians, who can be employed in the Nutrition Departments in the various States or in the Primary Health Centres.

It is understood from the UNICEF that the training of nutrition workers is an important part of the UNICEF programme in the Third Plan. Advantage may be taken of this training programme.

In our country, this subject is not receiving the attention it deserves. It is well known that unless proper nutrition is provided in the early years of a child's life, his complete physical and mental efficiency can never be ensured. There is a famous Chinese proverb which states, "if you want to plan for a year, plant green, if you want to plan for 10 years, plant trees and if you want to plan for 100 years, plant men." Provision of lunch to school children will pay dividends in the form of strong men and women who will build up our country in future.

APPENDIX C—XVI

School feeding in India—submitted at the Regional Seminar on School feeding under FAO/UNICEF held in Tokyo (Japan) from 10-19th November, 1958.

Development of School Health administration in India

School medical inspection was first started in Baroda City in 1909. In the succeeding years, practically every State in India introduced some of school health programme, *inter alia*, School Feeding Programme. But the area covered by the Service varied widely as well as the types of the school in which these programmes were carried out. This matter was reviewed by the Joint Committee of the Central Advisory Boards of Health and Education in their Report published in 1941 and the Committee emphasized that satisfactory arrangements for medical inspection, treatment, school feeding etc., should form an essential part in any system of public education. They also, in their Report, stated that environmental hygiene is striking in its absence particularly in the schools in the rural areas and proper provision for school feeding as well as follow-up service were wanting.

2. This subject again attracted the attention of the Government of India and in 1946 the Health Survey and Development Committee (The Bhore Committee), in their Report, reviewed the position of health services for school children and suggested that there was a great need for the closest possible co-operation between the medical officer and school teacher in promoting the health and general welfare of the school child. The Committee stated that the teacher will indeed play an important part even in the organisation of preventive and curative medical care of the child in the early stages of this programme. The Bhore Committee suggested that the functions of a school service should fall broadly into two groups :

(1) health measures, preventive and curative which include :
  (a) the detection and treatment of diseases ;
  (b) the creation and maintenance of hygienic environment in and around school ;

(2) measures for promoting positive health which would include :
  (a) the provision of supplementary food to improve the nutritional status of the child ;
  (b) physical culture through games, sports and gymnastic exercise and through corporate recreational activities ; and
  (c) health education through formal instruction and practice of hygienic mode of life.

3. This Committee, while dealing with the improvement of nutrition of the child, suggested that mid-day meal providing a balanced diet in accordance with modern conceptions of desirable nutritional standards should be given and stressed that this would perhaps improve the health of the growing child to a great extent than most ofthe other measures in a school health service programme. Many children, especially in rural areas, walk distances of two or more miles to the schools and back home every day. With such physical exertion in addition to games and other forms of atheletics, in which they may take part, it is not surprising that, even from the point of view of energy food, many children do not receive adequate amount of food. Moreover, as a sufficient quantity of essential articles, such as, milk and green-leafy vegetables are often lacking in the food to an appreciable proportion in these children, there is added disadvantage of living continuously on an ill-balanced diet. The provision of a good mid-day meal at schools should help to rectify these defects to a large extent, and the Bhore Committee recommended strongly that this should be a compulsory feature in the School Health Service programme.

On the basis of this recommendation made by the Bhore Committee, the School Feeding Programme, though not then organised on an all-India basis, due to want of financial and other considerations, was taken up by some of the progressive erstwhile States in India, particularly, Bombay, Madras, Uttar Pradesh, Hyderabad, Madhya Pradesh, Travancore-Cochin and West Bengal.

4. As a result of this recommendation, the Government of India prepared a comprehensive scheme during the first Five-Year Plan to the tune of 90 million rupees on school health services, *inter alia*, school feeding. This, however, could not be included in the First National Plan due to the fact that funds available had to be utilised for other higher priorities in health service, *viz.*, Malaria control, etc.

5. In 1949, at the request of the Government of India, the UNICEF started importing skim milk powder into India for supply to all the States and Territories for conducting the following two feeding programmes :—

(1) for feeding expectant and nursing mothers and pre-school children through hospital maternity and paediatric wards, MCW Centres, and other institutions catering to all children ;

(2) for feeding school children below the age of 14 through schools, preferably in Community Development and National Extension Service areas.

6. The distribution is made free of charge and without regard to caste, creed or political affiliation. The average daily ration recommended is 40 gms. of skim milk powder per head. In the case of the feeding programme through maternity and child welfare centres, the distribution is done in liquid form , *i. e.*, 40 gms. of powder to 7 oz. of water to be consumed by each beneficiary on the spot. At times when there is difficulty, two week's ration was issued in powder form at a time, but proper check is exercised as to whether proper use is being made of the skim milk powder through the home visiting staff of the maternity and child welfare centres.

7. In the case of the programme of feeding school children below the age of 14 through schools, only liquid distribution is done. The State Governments work out the plans in the shape of list of feeding centres district-wise with numbers of mothers and children or of school children to be fed through each centre, within the limit of the resource, both administrative and financial, calculate the quantities of skim milk powder required for a year at the rate of 15 lbs. per beneficiary in the case of school feeding and 25 lbs. in the case of maternity and child welfare feeding and submit the requests for skim milk powder to UNICEF through the Ministry of Health.

8. The milk powder is released free of charge from the nearest port depots (Bombay, Madras and Calcutta) is despatched by goods or passenger trains as desired by the consignee with freight free. All costs of distribution within the State are required to be borne by the State Government except U. P. and Punjab. A departmental charge of 4 percent of the declared value of the milk is also required to be paid by the State to the Medical Store Depots. Nearly 11,45,000 childran are receiving each a glass of milk every day during 1958-59. The UNICEF has contributed nearly 17 million pounds of skim milk powder in 1957-58 and 1958-59. In addition to this, UNICEF is giving aid in the establishment of dairy plants, including spray drying equipment to make milk powder, so that milk could be made available cheaply to a much larger group of people. The UNICEF has provided equipment for milk drying plant north of Bombay. The Plant started production in October, 1955. Equipment has also been provided for a drying and fluid milk plant in Saurashtra, another State of India. The Government will distribute to mothers and children free of charge over a period of five years

a quantity of milk equivalent to the value of 1½ times the UNICEF contribution. This welfare programme is expected to become a permanent programme.

9. The need for a medical inspection of pupil and students in schools and colleges, as well as a school feeding programme has been emphasised in the report of the Secondary Education Commission published in 1953. In the Second Five Year Plan (1956-61) provisions have also been made by many State Governments in India for providing school health service. The following States have made provisions in their State Plans (1956-61) for school health Service :

	Rs. in million
1. Andhra	1.12
2. Bihar	2.91
3. Rajasthan	0.60
4. Kerala	0.05
5. Mysore	0.54
6. Uttar Pradesh	2.21
7. West Bengal	2.50
8. Tripura	0.10
9. Assam	0.06
10. Madhya Pradesh	0.47
11. Manipur	0.02
12. Jammu & Kashmir	0.72
13. Andaman & Nicobar Islands	0.20

10. A sum of Rs. 14·44 million has been provided in the State Sector in the Second Five Year Plan for school health service. In addition a few States like Madras, Mysore, Pondicherry, Jammu & Kashmir and Andaman and Nicobar Islands have made provisions in their Plans for school feeding programme totalling to Rs. 18·37 million.

11. The reasons for undertaking such a programme have been made abundantly clear. Besides Government departments responsible for feeding programme in schools, voluntary organisations also undertake such programmes in India. To give an example, the Sarai Memorial School Meal Service in the State of West Bengal in the City of Calcutta is rendering excellent service in providing of a mid-day meal to school children.

12. The criteria adopted for selection of schools and school children was that : (a) they be in rural areas ; and (b) they be within Community Development Blocks. In a school feeding programme, there is no selection of the children, and all the children attending the school get the benefit of the programme. They are given mid-day meals because it has been found that quite a large number of children have a low nutritional status. The number of children attending schools covered by the School Feeding Programme in India is approximately 10,25,000.

II. Brief Account of Measures benefiting pre-school children 3-6 years

As has already been mentioned, skim milk powder is given to pre-school children through hospitals, maternity and paediatric wards, M. C. W. centres and other institutions catering for the welfare of mothers and children.

2. Under the first and second Five Year Plans, India is undertaking intensive rural development. The establishment of a country-wide network of health service on high priority within the framework of rural Community Development and in the implementation of these programmes, particularly in maternity and child welfare field, substantial aid is being received from the UNICEF. The UNICEF gives assistance to eleven States which in addition to their participation in National Programmes are operating child welfare programmes financed by them. They are—Bihar, Hyderabad, Kerala, Uttar Pradesh, West Bengal, Bombay, Mysore, Madhya Pradesh, Saurashtra, Assam and Andhra. The pre-school children are supplied with diet supplements and milk through 2250 centres established in India. During the remaining period of the plan period, we hope to step up with aid from UNICEF up to a target figure of 3088 centres.

3. The existing centres have been staffed and are being upgraded by the addition of new staff, etc. It is hoped that these centres will play their part in the overall pattern of health services envisaged in our national plan; some of which will become main units supervising sub-centres in the district and the rest will be integrated under the main units. In order to give benefit to the pre-school children in nutrition through these centres, an intensive training programme has been undertaken in India. In this direction, we should like to express our appreciation for the aid given by the UNICEF in the training of nurses, midwives, etc. The UNICEF has given aid to start such training programmes in eleven States and also has provided equipment for 241 training centres for nurses, midwives, health visitors, and auxiliary nurse-midwives. These auxiliary nurse-midwives are a new category of personnel specially suited for rural service. In 1955, 1500 nurses 2170 midwives, 115 health visitors and 250 auxiliary nurse-midwives graduated.

III. Food Provided in the Schools

There is no uniform set pattern of the mid-day meal that is provided in the schools in India. As there are many factors which govern a balanced diet required for a school child in a particular place, the question of providing a balanced mid-day meal is left to the State Governments concerned who undertake diet and nutritional surveys and, thereafter fix such diet as would be necessary for the school child.

2. In view of what has been stated above, the type and quantity per child per day of some of the menus given to the school children are given as under :—

Cereal food, sweets and fruits.

The quantity of cereal and sweets generally is 4 oz. per head.

3. This menu is given in a Hindu School at Calcutta and has been reported to be considered sufficient to sustain the boys till the end of the school day. In almost all the States, the school feeding programme is supply of UNICEF milk powder at the rate of 40 grammes of milk per child ; in addition multivitamin tablets are given. In some places, as for example in Bihar State where there is less of iodine, potassium iodine tablets are also distributed in addition to milk and multivitamin tablets.

4. The Bombay Municipal Corporation is giving "*Chiki*" (toffee) and/or fruit preferably "banana" to supplement the existing feeding programme of "toned milk" (8 oz. per child per day) to the under-nourished municipal school children. The caloric value of "*Chiki*" (toffee) (1½ oz. per child per day) works out to about 185 calories. Besides this "*Chiki*" (toffee), the Government of Bombay are also giving snacks for school canteens and mid-day meal for school children.

5. Experiments have been tried out on a large scale on the use of multi-purpose food on the growth and nutritional status of school children. In school two identical groups of children were taken and in one, the Multi-purpose food was added to rice diet. When this experiment was carried out each child was given daily a supplement of 2 oz. of multi-purpose food in his diet. The group of children, who was purely on rice diet after a period of 5-6 months showed increase in height, weight and haemoglobin height [0·50 weight 1 lb. and haemoglobin (g) ·13]. In the group of children who has taken rice and in addition 2 oz. of multi-purpose food, showed the following increase :

height	0.96″
weight	2.61 lb.
haemoglobin	1.00 g.

From this, it may be noted that as a result of the addition of multi-purpose food at the rate of 2 oz. per day, per child, there was an increase by 1 per cent height, weight and haemoglobin.

6. The Multi-purpose food is being manufactured at the Central Food Technological Research Institute at Mysore and it consists of defatted groundnut flour 75 parts and Bengal gram 25 parts fortified with vitamins and minerals. One ounce of M. F. yields 100 calories.

Constituent	*Indian Multi-purpose Food*
Moisture (g)	6.8
Protein (N×6.25) (g)	41·9
Fat (g)	8.5
Ash (g)	7·0
Carbohydrate (by diff.)	35·8
Calcium (g)	0.665
Phosphorus (g)	0.820
Iron (mg)	5·1
Nicotinic acid (mg)	14.0
Riboflavin (mg)	3·0
Vitamin A (I.U.)	3000
Vitamin D (I.U.)	300
Caloric value	387
Thiamine (mg)	1·3

7. This Indian multi-purpose food is one of the cheapest products of its class. Its cost does not exceed half a rupee per lb. including packing. With adequate mechanization and increase in production, it may be possible

even to bring down the cost by 25 per cent. As the daily dosage given to a child does not exceed 2 oz., the cost per child will not exceed 6 nP. per day. In the case of young children, even half this amount will suffice. Considering the concentration of protein and the associated minerals and vitamins, the Indian multi-purpose food perhaps is one of the cheapest products of its style. We are hopping to introduce multi-purpose food in the school feeding programme on a large scale.

8. The total cost in the feeding programme is, as it is mostly a school feeding programme by UNICEF milk, about Rs. 200 per ton of milk powder supplied by UNICEF· The quantity of milk powder received is approximately 4,000 tons and, therefore, the expenditure borne by the various State Govts. in this programme for skim milk powder is to the tune of about 8 million rupees. As already mentioned previously, the State Governments have provided in their plans, an amount totalling to Rs. 183·67 lakhs for the five year period 1956-61.

9. The cost per child per day for the food supplied varies depending upon the type of mid-day meal given to the child. If the multi-purpose food is given, it works out, as already stated, to hardly 1/16th of a Rupee. If, however, a full mid-day meal is given, as is being done in certain large Corporations in India like Calcutta and Bombay, the cost is much greater. As for example, the Sarai Memorial School Meal Service in Calcutta, which supplies mid-day meal packed in card-board boxes, the mid-day meal works out to 1/8th of a rupee for each meal. The same meal, if purchased from the market is reported to cost 1/4th of a rupee. This economy has been achieved due to constant personal supervision and because this is a non-profit making organisation. The meal supplied by this Sarai Memorial School Meal Service is given as under :

Sweet (Rusgoola), bread and butter and mussami (pieces of citrus fruit).

10. The school feeding programme is certainly linked up with education in nutrition. The question of having a school garden is also engaging the attention of the Government of India. Recently, a scheme has been formulated which is to be introduced in the post-intensive Community Development Blocks. The school garden in that scheme includes (a) teaching children, how to grow local foods which are useful to have ; (b) to provide channels through which unknown food of high nutritive value may be grown and introduced in the local diet ; (c) to interest the community through the child in those foods which are essential in local diet ; and (d) to carry through the child into the home garden better agricultural practices.

The effects of school feeding programme

(a) *Health of the children.*—The effect of feeding skim milk supplement was noted in a primary school in the City of Hyderabad in the State of Andhra. 533 boys were kept under investigation of which 326 received the supplement and 207 were kept as controls with no supplementary food of any kind. The results were assessed at the end of six months. The average increases in the heights and weights in the two groups were as follows :

	Average gain	
	Height inches	Weight lb.
Controls	0.28	0.37
Skim-milk-fed	0.45	0.88

There was general improvement in the condition of skim-milk-fed group and a marked diminution in the incidence of deficiency signs.

(b) *School attendance and performance.*—According to the report received from the Sarai Memorial Meals Service which supplies mid-day meals to a large number of schools in Calcutta, it has been noticed that the attendance to the school as a result of the introduction of mid-day meals has improved considerably and that also as a result of the introduction of this mid-day meals, the school child was active, alert and paid attention to his studies till the end of the day.

IV. Main problems that have been encountered in developing a school feeding programme in India

A provision for the supply of light refreshments to school children in schools have been made during the last few years in some of the States in India as has already been mentiond. However, it has been noticed that the feeding programme is not carried out in an uniform way in all the States, being dependent on the funds available and on local conditions. As the problem of covering the entire cross-section of the school-going population in India is so enormous that we are trying to formulate a scheme for supplying free mid-day meals to all school-going children up to the primary stage in the Third Five Year Plan. The difficulties that may be experienced by all who are attending this Seminar would be :

(a) inadequate technical personnel,

(b) want of equipment in the shape of pumps, etc., for school gardening,

(c) the intimate co-ordination that would be required between the health and education departments, say, between a school teacher and the school doctor, and above all,

(d) an intensive health education propaganda as required for the parents to participate actively in this programme.

APPENDIX D

Sample Meals which can be used as snacks or tiffin for Pre-School Children

1. (a) Two Chapaties (with bengal gram)
   (b) 1 'dal ladoo'.

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) Chapaties—2 (with bengal gram).	10.2	3.2	44.6	252	6
(b) 'Dal ladoo'—1	2.7	6.5	21.6	155.7	6
TOTAL .	12.9	9.7	66.2	407.7	12

2. (a) Two chapaties (with soyabean)
   (b) Simple bengal gram burfi—1

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) Chapaties (with soyabean—2).	16.8	7.2	33.8	268	6
(b) Bengal gram burfi—1. .	4.2	2.0	18.0	107	5
TOTAL .	21.0	9.2	51.8	375	11

3. (a) Chapaties with vegetable—2
   (b) Soyabean 'pakora'—1

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) Chapaties (with vegetable —2).	7.6	2.4	34.6	184.2 .	4
(b) Soyabean 'pakora'—1 . .	6.2	13.4	3.4	159.8	4
TOTAL .	13.8	15.8	38.0	334.0	8

(a) "Khicheri" with wheat and vegetable (weight of raw food articles, 'dal', wheat and vegetables, etc., for 1 plate—112 gms.)

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) 'Khicheri'	9.1	2.1	37.4	205.4	10

5. (a) Chapaties with vegetable—2.
(b) 'Dal Ladoo'—1.

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) Chapaties with vegetable—2	7.6	2.4	34.6	184.2	4
(b) 'Dal Ladoo'—1. . . .	2.7	6.5	21.6	155.7	6
TOTAL .	10.3	8.9	56.2	339.9	10

6. (a) 'Dal Puri' (with soya bean)—1.
(b) Toffee (with bengal gram, groundnut and gingelly seed)—28 gms.

Food items	Food value			Calorie	Cost
	Protein gm.	Fat gm.	Carbohydrate gm.		nP.
(a) 'Dal Puri'—1	7.3	14.2	16.6	224	6
(b) Toffee—28 gms. . .	3.2	2.4	20.1	111.3	3
TOTAL .	10.5	16.6	36.7	335.3	9

APPENDIX E (i)

Draft Syllabus for Health Education in Teacher Training

Topics to be included

I. The health education programme in schools and the role of the teacher in the school health programme including curriculum planning.

II. **The Healthy Child.**—(That may be covered under growth and development study in various subjects).

A. How child grows and develops and how the body functions (elementary physiology and anatomy.

B. Physiological and psychological changes which take place during his development.

C. His natural interests at different developmental levels.

D. His nutritional requirements.

E. Special other health needs at various stages of development.

F. Recognition of signs of illness and deviation from "normal" development.

III. Understanding of general education principles and procedures and ability to apply these to the health education programme. May be studied in general teacher training and added to in health education.

IV. Understanding of the social and cultural factors (beliefs, customs, habits, values, superstitions, traditions, etc.) of people and how they affect health and disease (May be covered in social studies or general teacher training) partially.

V. Understanding of the major personal and community health problems (and needs) in the village, District, State, Nation, world; the chief causes for these problems, some things which may be done to solve them, especially the things which the school can do. Some examples of health problems are:

A. *Nutrition :*

1. The extent of the problem (or need).
2. Signs of good nutrition.
3. Food requirements for the body for different age group and work load. (refer to II D above).
4. Nutritive values of local foods.
5. Some knowledge of the selection of foods and the preparation of wholesome meals.
6. Effects of malnutrition.
7. Ways to improve the situation as given in No. 1.
8. Ways to improve un-balanced diet of masses to more or less the standard without increase in cost, realising the constituent elements o diet available from cheap foodstuffs.

9. The importance of food sanitation in promotion of health and prevention of disease.

B. *Communicable Diseases*

The part played by micro organisms in the cause of diseases.

How diseases spread from person to person.

Ways to prevent common communicable diseases in his community; diseases and condition such as the following :

1. Smallpox & Chicken pox
2. Tuberculosis.
3. Malaria.
4. Filariasis.
5. Cholera & Typhoid
6. Diarrhoeas and dysenteries.
7. Conjunctivitis
8. Trachoma.
9. Scabies.
10. Leprosy.
11. V. D.
12. Hookworm.
13. Intestinal worms.
14. Diphtheria.
15. Mumps.
16. Influenza.
17. Measles.
18. Whooping cough.
19. Rabies.
20. Colds.

What part can school have in control of the above ?

Note 1.—If the teacher trainee has taken a basic health study earlier in his college career, much less time may be required in learning the basic facts about diseases during his teacher training course.

Note 2.—See copies of the draft syllabus (or copies of more detailed syllabi if they are available in the different states) for suggestions as to what the child should know and do at different stages of development :—6-11, 11-14, and 14-17.

C. *Sanitation.*—Understanding of the relationship of environmental sanitation to health with particular application to safe water supply, disposal of sullage waste water, food handling, fly control, cleanliness of school and home, disposal of night soil, disposal of other kinds of refuse.

D. *Personal Health* (personal cleanliness, or personal hygiene)

1. Habits which the child should practise to promote health and prevent disease.
2. Facts he should know.
3. Habits and attitudes teacher should have.

E. *Mental Health*

1. Signs of mental health.
2. Ways to promote mental health.
3. Body functions in relation to mental health.
   (a) Ductless glands.
4. Signs of mental (emotional) troubles.

F. *Family Life Education including Sex Education.*—Information significant to the development of wholesome family life. Understanding of human reproduction, knowledge of the Government National Family Planning Scheme.

G.1. *Safety*

(a) Knows causes of accidents.

(b) Understands how accidents may be avoided or prevented.

G.2. *First Aid*

(a) Knows and can apply first aid and emergency care measures.

(b) Has knowledge of treatments for minor ills.

H. *Sleep, rest, exercise, posture, fatigue, recreation*

I. *Vision, hearing, etc.*

J. *Dental*

K. *Infant and child care*

VI. **Health education through health services.**—Teachers should know—

A. What services are available in that community.

B. What services are available to the children in that particular school and how these can be best utilised.

C. What constitutes good health appraisal of the school child and the teacher's part in health appraisal, planned with health personnel and including—

(1) Conducting the morning inspection of children, (also teachers should keep themselves healthy and clean, having healthy habits).

(2) Keeping records of findings for follow-up of defective cases.

(3) Measuring height of children and taking their weight (if scales are available).

(4) Checking vision (if practical).

(5) Observing vision practices of children.

(6) Reporting findings to appropriate persons (parents, doctor, nurse, health centre staff etc.) after discussions with nurse when practical.

(7) Being present at medical examination of children by doctor when conducted in the school (if possible and practical).

(8) Using findings from the examination to do health guidance and health teaching.

(9) Talking with child in appropriate manner to help him carry out the recommendations of the doctor, etc.

(10) Having conference with the parents, when needed about the child's condition, what can be done to improve it, and encouraging parents to take action.

D. The part the staff members of the health centre or other service staff : doctor, Nurse auxiliary nurse midwife, vaccinator, health inspector will have in the promotion and appraisal of the child's health.

E. The role of community agencies such as Red Cross and other such voluntary health organisations may take in promoting and assisting the health work in the schools.

F. The teacher should know something of the various health schemes in the Government.

(1) B. C. G. Campaign to control and prevent T. B.

(2) National Malaria Eradication Programme.

(3) National Filaria Control Programme.

(4) Yaws control programme in tribal areas.

(5) National Smallpox and Cholera Eradication Project.

(6) School Health Services.

(7) Community Health Services through Primary Health Centre.

(8) UNICEF skim milk feeding programme through MCH and Schools.

(9) Family Planning Health Services.

(10) Nutrition Health Services through Health Organisations and FAO/UNICEF assisted expanded nutrition programme.

(11) Rural water supply and school Sanitation Programme.

(12) School Health Education Programme.

G. Teacher trainees may be taken to the nearest Primary Health Centre or Rural Health Centre, see actual demonstrations in consultation with staff of centre.

H. The teacher needs to have some specific directions as to the signs and symptoms of ill health or defects which show that something may be wrong with the child's health. Knowledge of these would be of help to the teacher in his morning inspections and at other times during the day especially during the physical training activities for identifying those children who need some attention.

I. The administrator's (teacher's in one-teacher school) part in arranging medical services for the children.

(a) will medical officer come to the school ?

(b) will children be taken to the health centre ?

(c) will a public health nurse (lady health visitor, auxiliary nurse midwife or other nursing worker) visit the school in the interest of the health of the children? or will teacher take all this work? Whatever plan is to be used at that particular school, the administrator (or teacher) should assume his part in the planning of the services as to—

(1) time the services are to be given ?

(2) where in the school the services will be conducted ?

(3) will parents be notified to be present and who will notify them ?

(4) who will follow up the cases ?

VII. **Healthful School Environment**

A. How the environment can promote health and growth of children?

B. How the environment may adversely affect the growth and health of children, causing diseases and illnesses.

C. Important items in the school environment which can effect growth, health, posture, efficiency, etc., including—

1. The School site.
2. Building.
3. Equipment and furniture.
4. Water supply.
5. Latrines, urinals disposal of refuse.
6. Play areas : size, conditon, lack of play area etc.
7. Ventilation, lighting.
8. Protection against cold, damp, wind.
9. Condition of floor (where children sit).
10. Location of blackboard (as to light).
11. School mid-day meals.
12. General cleanliness of environment.
13. Beautification.

D. Teacher's health and his health practices and how these effect health of children.

E. Influence of home environment on health of child and how school may influence home practices.

F. Effects of teaching methods on child health.

1. Examination.
2. Long study vs. short study hours with intervals for play and rest.
3. Home tasks.
4. School hours and activities according to different ages.

G. The administrator's part (teacher in a one-teacher school) in maintaining and improving the environment.

1. Cleanliness of building and surroundings : gives guidance to teachers, students, sweepers etc.
2. Maintenance and repair.
3. Seeks guidance from proper health authorities. When new construction or alterations are to be undertaken.

VIII. The importance of health teaching in the Primary (Basic) Middle classes, and Secondary Schools and the planning for the health education programme in the school(s) where the teacher trainee will be working.

A. *Primary schools*

1. Setting goals : (a) what the children in each class should know and do.

(b) the amount of time to be spent on the health teaching.

(c) the examination requirement etc.

2. School-wide campaign-type activities. For example, suppose the faculty decides to set the goal to get every child to have a vaccination (or re-vaccination where needed) against smallpox. Each teacher (or class) would need to know (a) that the campaign is to be carried out ; (b) his part in the total educational programme about smallpox (c) the vaccination scheme, etc.

3. Selecting the health committee in the school and deciding the responsibilities of this committee.

NOTE.—The syllabus (the draft syllabus from Central Ministry or the syllabus in use in the State) for the primary school may be used as a basis for planning details of the programme for the primary school classes.

B. *Secondary Schools*

1. Setting goals: (a) What the students in different classes should know and do.

(b) Will health be taught as a separate subject or will all of the health topics be included in other subjects? If so, what subjects and what health topics in each subject?

(c) Which teacher or teachers will teach the health topics?

(d) What part will all the other teachers have in the health education programme?

(e) What examination (if any) will be held in the health study? etc., etc.

2. Selecting the health committee in the school and outlining the responsibilities of the committee.

NOTE.—The draft syllabus for the secondary school may be used sa a basis for planning the details of the health programme for the Secondary school.

C. *Some Administrative Responsibilities*

1. Will each teacher use the health syllabus, provided to him as it is or will he be expected to expand or adapt it to suit that particular group of children and local conditions?

2. How will the administrator secure the appropriate materials for the teachers? Are materials available from the central or State education or health office? Does each teacher have these materials at hand? What health content is in the textbooks and how will this be supplemented?

3. Will proper arrangements be made for physical education and for health aspects of it?

4. Will a parent teacher association or other parent and teacher group be organised and who will be responsible for organising?

IX. Assessment OR Evaluation

A. Fix up a baseline first (refer to V above) and then formulate the goal. B. Review goals get early in the school term. C. Determine how much has been accomplished towards these goals. D. Review present health needs and disease problems of the children (See A above). E. Decide what needs to be done next to solve these problems (See A above). F. Plan a programme of action (VIII A & B).	Find out the reason for non-fulfilment of any goal.

X. How to teach to motivate students to learn and to do those things set as goals (Refer to list of teaching—Learning activities).

A. *Methods to consider.*

1. lectures.
2. demonstration.
3. committee work.
4. visitation and observation.
5. story telling.
6. field trips.
7. group discussion.
8. art work.
9. bulletin board display
10. drama.
11. puppet plays.
12. visiting health clinics.
13. having doctor visit class.
14. making models.
15. panel discussions.
16. exhibition.
17. film demonstrations.
18. model a health clinic.
19. developing school magazine.
20. sanitary and health boards in each school (of students)
21. projects in village.
22. maintain student health study record.
23. surveys.
24. case studies.
25. scientific approach (problem solving).
26. hobby exhibitions.
27. laboratory methods.
28. making charts and diagrams.
29. essay competitions.
30. health projects.
31. supervised study.
32. health squads.
33. doing practicals—
    (a) keeping water safe.
    (b) disinfecting well.
    (c) constructing compost pit.
    (d) sweeping floor.
    (e) keeping refuse in basket.
    (f) regular use of latrines and urinals.
    (g) trimming nails.
    (h) cleaning teeth.
    (i) washing hands etc.
34. demonstration of vaccination (primary and re-vaccination) inoculations, D.D.T. spraying, leprosy treatment.
35. health weeks.
36. safety weeks.
37. parent teacher activities for bringing home and school closer together.
38. carry out practices in school attached to training colleges.

B. *Planning the Teaching Activity.*—Teaching approaches, teaching activities, or whatever term is used to designate way the teacher chooses to have material presented, should be well planned, choosing appropriate teaching aids to facilitate the teaching.

1. For example, when teaching about malaria, a visit may be planned around the mosquito, where it lives and breeds.

(a) Students may make a survey in co-operation with health personnel to locate breeding places.

(b) Information may be secured by students as to how these places may be improved to prevent mosquito breeding.

(c) Decision be made as to what part students can take.

2. When teaching about the use of D. D. T. in control of malaria, discussion about this may be given. And a demonstration arranged to show how houses are to be cleared of furnishings, D. D. T. put on, etc.

3. Appropriate teaching aids may be selected—

(a) text books.
(b) flash cards.
(c) charts
(d) posters.
(e) films.
(f) filmstrips, slides.
(g) flannelgraph.
(h) puppets.
(i) blackboard.
(j) leaflets, pamphlets.
(k) real objects or actual situations.

XI. Reference list for use by the teacher trainees :

A. Library materials.
B. Text-books.
C. Current materials : periodicals pamphlets, leaflets, posters etc., on health subjects.
D. Teacher guides.
E. Visual aids.
F. Audio-visual aids.

XII. The teacher-in-training should have ample opportunity to :

A. Observe healrh work and workers.

B. Work with health leaders.

C. Try out some practical health activities with students in primary and/or secondary schools under the capable supervision of teachers with experience.

APPENDIX E(ii)

Draft syllabus for Health Education for Ages 6-11

Things for the Child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
I. PERSONAL HYGIENE	
Child should know—	Child—
1. That cleanliness of persons and clothing is desirable for appearance, good feeling, health promotion.	1. Learns to appreciate clean feeling and clean looks.
2. That hands are to be washed after toilet use and before handling food.	2. Washes hands after toilet use, before handling food, etc.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
3.(a) That cleanliness helps protect against diseases and makes child more attractive.	3.(a) Washes hands when they are dirty looking to prevent soiling books, clothing, etc.
(b) That clothes need to be washed daily to keep clean and attractive. If daily washing is not possible, they may be : (1) Sunned and brushed. (2) Clothes worn neat to the skin (underclothes) washed. (Wash in evening, wear next day is best where there is only one set of clothing). May wear some old clothing during the night.	(b) Takes bath daily or as often as possible to be attractive to others and to have good feeling of freshness. Has clean clothes daily, if practical.
(c) That he must bathe.	
4.(a) To clean teeth on both sides.	4.(a) Cleans teeth every morning and immediately after eating food, if possible, to take away food particles to prevent decay and to make teeth more attractive.
(b) To use clean water to clean teeth.	(b) Uses clean water for cleaning teeth.
(c) To clean teeth, he may : (a) wash his mouth (2) use twig from tree as— Neem twigs Banyon twigs Soft twig Kiker twig Datan	(c) Uses own finger (when clean), appropriate tree twig or brush.
(d) That he should not use pin or other hard substance for cleaning teeth as that might injure or harm the gums.	(d) Does not use pin, or earth, or gritty powder.
(e) That tooth powder, paste or other material may be used to assist in cleaning teeth.	(e) May make own tooth powder as desired using salt and charred paddy husks, or some other suitable ingredients. A prepared tooth powder may be purchased, if desired.
5. To turn head away and cover mouth and nose when coughing or sneezing.	5. Covers coughs and sneezes to protect others using one of following way or combination of them : (a) Using handkerchief. (b) Using clean cloth. (c) With head bent forward. (d) Turn face away from other person and cover mouth and nose with hands held together and in front of face and nose.
6.(a)(1) That spitting is a dirty habit.	6.(a) Does not spit as a general habit. If necessary to spit, then spits, only in safe places, as suggested here :
(2) That cultured and educated people do not spit in improper places.	

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
(b) That spitting can help spread disease.	
(c) Where to spit in case it seems necessary.	(1) Spittoons provided for the purpose. (2) In sigree (angithi containing red hot coals). (3) In dust bins. (4) Use cloth or paper which can be disposed of. (5) Special containers with disinfectant or dust at bottom, etc. (6) In handkerchief to be washed.
7. How to care for own clothing in ways appropriate to his age.	7. Helps to take care of own clothing and keeps it clean.
8. Which are the appropriate places for bathing in his community or home.	8. Bathes in those places designated as appropriate in order to protect the water supply, etc.
9. That eyes, ears, nose, mouth need special care and protection.	9.(a) Keeps 'dirty' fingers and all objects out of mouth, ears, eyes, etc. (b) Seeks medical services if anything is wrong.
10. That nails should be trimmed and kept clean.	10. Keeps nails trimmed short and keeps them clean.
11. That hair should be clean and free from dirt and disease.	11. Washes hair as needed. Combs hair daily.
12. That footwear provides some protection against injury and disease.	12. Wears shoes in order to protect his feet in best way.
13. That protection is needed against heat, cold, rain, etc.	13. Takes care of himself in cold, rainy or hot weather according to knowledge and with resources available to him.

II. ENVIRONMENTAL HYGIENE (HEALTHFUL SCHOOL LIVING)

Child should know—	Child—
1.(a) That safe water is needed.	1.(a) Drinks only safe water.
(b) How to keep water clean and safe for drinking. (1) Protect the source no washing of utensils or clothing in drinking water source. no bathing in drinking water source. no ablutions. not to obey call of nature near water supply. (2) Keep water in pots and keep covered. —replace lid after use. —use laddle or cup with long handle to take water from pot or *ghurrah.* —keep and out of water in pot. —when a cup has been used by a person, do not put into pot again until it has been cleaned.	(b) Helps to keep drinking water clean and safe.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
(3) Use boiled water.	
(4) Treat water by : Using bleaching powder or other suitable chemical. Filtering.	
(c) That water in well can be treated to kill (or take away) the germs which cause illness. The Panchayat, the health officials, or some other qualified person may do this : Bleaching powder or other suitable disinfectant may be used.	(c) Assists in purifying water in accordance with age, if directed by elders.
(d) Protected wells keep water safe for drinking.	(d) Helps to keep the well protected, (1) No bathing or washing in or near it. (2) No latrines usage near the well, (3) Store water in safe manner to keep it safe for drinking.
(e) If water is not protected or treated, it may be boiled before taking.	(e) Assists in boiling water, as needed, in accordance with directions from elders.
2.(a) That sanitary latrines and urinals or other similar facility for depositing body wastes are essential to good health.	2.(a) Uses latrines and urinals as directed by teacher, parents or other leaders.
	(b) Helps to keep latrines clean and in attractive condition.
	(c) Uses proper latrines for defecation. Do not use fields, streets, ponds or streams. When there is no latrine available to the child at time of need ; he may be instructed as follows :
	(1) Defecate in pits : (a) dig trench. (b) use an out-of-the way place. (c) carry a "Khurpi" to fields to dig trench, (d) cover night-soil with earth.
	(2) Do not defecate : (a) on banks of river or stream, (b) in rivers or streams. (c) near tank or other water supply. (d) in streets, roads, or lanes. (e) near inhabited places as play grounds, etc.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
3.(a) That home, streets, play area, school should be clean to be safer, more beautiful and help to keep child healthy.	3.(a) Puts trash in dust bin, pit or other appropriate place.
(b) That dust blowing into the classroom may cause discomfort by irritation of eyes, throat.	(b) Helps clean up trash which has been around thrown by thoughtless people, etc.
(c) Dust should be removed daily for cleanliness and health.	(c) Helps to keep cleaning implements (apparatus) handy : broomsticks, basket, buckets, longstick with palm leaves for cleaning cobwebs, etc. (cleaning apparatus may vary from one locality to another).
(d) That each person should do his part to keep surroundings clean.	(d) Serves in housekeeping committee or clean-up committee to help keep building and grounds clean. Sweeps and dusts classroom daily to keep it clean and tidy. Takes part in decorating. Sprinkles water as needed to keep down dust before sweeping and at other times.
(e) That the cleaning work may be more effective when responsibilities are planned.	(e) One group may sweep path to school, another group picks up paper bits, leaves, etc. Girls decorate front of school with 'kadam' (design drawing with white powder) or other appropriate decoration.
(f) That hands, face, feet need cleaning after doing cleaning work.	(f) Wash hands, face, feet, after doing cleaning work : (1) At least wash hands. Do not accept food or drink until it is done. (2) Provide water, give instruction. (3) Water can be stored for this purpose. (4) If no water at school, children may be taken to well or river. (5) Stress washing immediately upon arrival at home.
4. That proper ventilation and lighting are needed in his school, home or other places for work, play, living, etc.	4. Makes best use of light and ventilation facilities available to him.

III. CONTROL OF DISEASES

Child should know—	Child—
1.(a) That safe water can help keep him free from certain diseases (see section on environmental hygiene for additional suggestions).	1. (a) Drinks only safe water (tube well boiled, filtered, treated, etc.).

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
(b) That water must be kept clean.	(b) Helps to protect the water supply by : keeping dirt and rubbish out of the drinking water, bringing water for drinking and stores it in a safe way in a safe place.
2. That sanitary latrine is important to health (see environmental hygiene).	2. (a) Uses sanitary latrine. (b) Helps to keep the latrine clean and attractive.
3. (a) That diseases are caused by germs. These germs can be spread by discharges from the sick person to a well person through water, food, air, by flies, mosquitoes, rats, dogs, etc.	3. (a) Learns, according to age of understanding, how certain diseases are caused. He does those things he knows which will help to prevent the diseases to himself or to others.
(b) That flies can carry filth (with germs in it) to food. Children have seen flies on food and also seen flies on filth (feces). Food should be covered to protect it from flies.	(b) Stores food where flies cannot get to it.
(c) That flies breed in uncovered cattle dung heaps and other such places.	(c) Helps collect cattle dung, put into compost pit, cover with earth, etc.
4. (a) That the mosquito carries the malaria or filaria parasite (germ) from the sick person to the well person.	4. (a) Protects himself from mosquitoes.
(b) That mosquitoes live and breed in water.	(b) Helps to make a once-a-week check at least about the compound or village to find and prevent mosquito breeding places. (c) Avoids contact with any of the other disease carriers.
5. That certain diseases can be prevented by immunisations : Smallpox, diphtheria, cholera, T.B., etc.	5. Gets immunisations as advised. Learns about immunisations available from the local health services.
6. That general causes of illness are : —infection (germs)— —excessive exposure to heat, cold, etc. —indiscretion in eating and drinking. —lack of certain essential food elements. —uncleanliness (unclean habits).	6. Assists in the conducting of National Health Schemes : Smallpox eradication as guided by teachers and parents and others as appropriate.
7. The elementary facts about certain diseases prevailing in the area : malaria, TB, leprosy, smallpox, diphtheria, whooping cough, influenza, cholera, typhoid, dysenteries, diarrhoea, hookworm, roundworm.	7. Learns some information about common diseases in accordance with age and other conditions : (a) At age six stress general habits to promote health and prevent disease. (b) By 11 years may know more about cause, transmission and some specific ways to prevent the disease.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
IV. Food and Nutrition	
Child should know—	Child—
1. That food makes him grow . . .	1. Eats foods available to him (provided by parents, teachers, etc.) which he has learnt will help him grow and be healthy.
2.(a) That food should be clean and free from germs.	2.(a) Helps to keep food clean.
(b) That flies can cause food to be unsafe for eating. Flies bring germs from sick man's discharges (feces, spit) to food of well person.	(b) Covers food to keep flies away.
(c) That food should be covered to protect it against flies.	(c) Covers mid-day meal at school.
(d) That the child should wash hands before handling food and after using toilet.	(d) Handles food with clean hands.
(e) That food hawkers do not always keep food clean and safe from germs.	(e) Does not buy food from hawkers as that food is not always properly protected against dirt, flies. Also that some hawkers do not practice good personal hygiene. Child develops the practice of buying from authorised food sellers. Requests that any food sold to him be properly wrapped.
3. That the body needs a variety of foods (nutrients).	3. Learns to eat many different kinds of of food if available.
4. Which foods (produced and/or used in his community) contain the most nutrients needed by his body for : energy, growth, and protection. He may learn to know foods especially good for energy, growth, protection.	4. Eats foods good for him (milk, etc.) and available in his community. Energy giving foods, protective foods, and foods for growth and body building. Learns to like these foods.
For *Energy giving* : Cereals, potatoes, gur and other sweets, oils, ghee, butter and bananas.	
For *growth or body building* : Milk, pulses, legumes, meat, nuts, eggs and fish.	
For *Protection* : Green leafy vegetables, other fresh vegetables, fruits (fresh and dried).	
But he should begin to learn that most foods include some nutrients for more than one group. Learns which of the common foods grown locally are most valuable to his growth, protection and for energy.	

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
5. That fresh vegetables and fruits are good for him.	5. Eats clean and fresh vegetables and fruits.
6. That too many sweets may not be good for his growth.	6. Refrains from buying and eating too many sweets and other foods of limited nutritive value.
7. The correct eating habits for his age group and community customs.	7. Practices correct and hygienic eating habits : (a) regular hours, (b) no hurry, no worry while eating, (c) proper chewing, (d) cheerful disposition, (e) limited eating between meals, (f) no overeating.
8. The desirable foods for special occasions (festivals etc.), fasting practices for his group and the health implications.	8. Helps keep food for festivals clean and attractive.
9. (a) That kitchen gardens can produce food to make him grow.	9. Takes his part in making kitchen garden at home and vegetable garden at school.
(b) That it is important to help with the work in the kitchen garden.	
10. How to serve food properly.	10. Takes turn in helping to serve food in accordance with family and community customs.
11. The best food for different seasons : hot, cold, etc.	11. Eats food suitable to his needs for different seasons.

V. HEALTH CONDITIONS IN TOWN OR VILLAGE

Child should know—	Child—
1. (a) About his own village or town.	1. (a) Learns the source of (show the teacher) the drinking water.
(b) Some of the people who help to keep his village (or town) safe and healthy.	(b) Takes pride in his own village or town.
	(c) Can locate the health centre (if there is one).
	(d) Can locate other health facilities in the village : dispensaries, hospitals, private doctors, dentists, etc.
	(e) Can name some of the people in his village who help to keep it clean and safe : Health Inspector, Sweeper, Traffic-man, etc.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
	(f) Can tell something about the work of each : panchayat and its chairman, chowkidar patel, doctor, vaccinator, health inspector, health visitor, auxiliary nurse-midwife,nurse, village level worker, sweeper.
2.(a) That the village water supply should be clean.	2.(a) Helps keep the drinking water safe and clean.
(b) That wells and tanks can be polluted by excreta and filth falling into the well, seeping through the ground, or from water dripping back into the well, by improper bathing, washing of the clothes or the cooking utensils near the well.	(b) Bathes and washes clothes away from the well.
	(c) Deposits excreta in sanitary latrine or away from the drinking water, and in safe condition.
3. The student may see section on 'Environmental Sanitation' for suggestion relating to village sanitation.	

VI. GROWTH

Child knows—	Child—
1. That healthy children grow .	1. Practices those things which will make him grow.
2. How to give some measurements of his growth (how to tell that he is growing).	2. Takes notice of his growth : (a) measuring height (teacher or parent assists, if needed). (b) weighs self if scales are at hand.
3. Knows elementary facts about his body and its functions (anatomy and physiology). Learns to know : what the following are, where located in body, and a little about the function of each : Class one . Parts of body — hands, arms, feet, legs, head, face, eyes, ears, nose, mouth, teeth, hair, body. Class three . Parts of body — knee, ankle, nails, skin, gums, toe, fingers, heel, tongue, neck, bones, muscles.	3. Does things which will promote good body functioning.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
Class four . Parts of body { chest, chin, red blood, heart, stomach, intestines, jaws, tonsils, adenoids, eardrum, throat, eyeball shoulder, brain.	
Class five . In classes 1-4 only a brief introduction may be given to parts of body. In class 5, the study of parts and functions, may be more detailed as basis for later understanding. To the list studied in previous classes the following may be added : heart, lungs, liver, large and small intestines, cells. In 5th class, the study may include : 1. General understanding of skeleton. 2. General knowledge of how muscles work. 3. Functions of skin and perspiration. 4. Respiration. 5. Circulation. 6. Kidneys and excretion. 7. Brain and nervous system. 8. The five senses : seeing, hearing, feeling, smelling, touching. 9. About the teeth : six year molar, first or temporary teeth, permanent teeth.	
4. That growth may be hampered by disease, lack of food, etc.	4. Does things to promote growth.

VII. REST, SLEEP, EXERCISE, POSTURE

Child should know—	Child—
1. That rest and sleep are needed to feel good and for growth. Amount of sleep needed for his age.	1. (a) Rests when tired. (b) Sleeps at proper time. (c) Goes to bed when advised by parents and teachers.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
2. That comfort during sleep and rest is desirable and usually more healthful.	2. Seeks the best conditions available to him for sleeping as to— ventilation place for sleeping clothing covering
3. That exercise helps to make his muscles strong, and helps to make him grow.	3. (a) Takes part in games suitable to his age group and community interest.
	(b) Takes part in some games or exercises to test his strength and measure his improvement in skill.
4. That good posture is attractive. . .	4. "Stands tall and sits tall" for good posture.
5. That it is desirable to have a balance between work and play.	5. Helps with work in accordance with his age, strength, skill, etc.
6. The safe places to play at school, in community, at home.	6. Plays at safe places to avoid accidents to self and others.

VIII. CARING FOR ANIMALS

Child should know—	Child—
1. That some animals can help him. . .	1. Is kind to the animals in the village those which help him and help other people.
2. That some animals may harm him. .	2. Avoids those animals which may harm him.
3. That animals need his protection. The animal may need to be kept in a safe place.	3. (a) Cares for his pets, also for farm animals.
	(b) Helps keep animals clean and free from insects.
4. That animals have diseases. Some of those diseases may harm people.	4. Keeps away from sick animals.

IX. SAFETY AND FIRST-AID

Child should know—	Child—
1. Elementary rules for safety : (a) plays in safe places. (b) avoids harmful animals. (c) stays at safe distance from fire and river, etc. (d) walks on safe side of road, street, lane. (e) avoids rash driving (of cycle). (f) takes care in handling electrical equipment. (g) The safety practices to use of knife, scissors, in running, jumping, throwing.	1. Observes rules of safety in playing and working...as listed in "things for child to know".

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
2. Simple first-aid measures—	2. Carries out first-aid measures according to his knowledge—
(a) to notify some one if accident does occur.	(a) notifies adult or older child in case of accident.
(b) how to extinguish fire.	(b) if clothing catches fire, he rolls on ground (over and over) to smother the fire. Does *not* run.
(c) how to give attention to cut, bruise, thorn pricks, insect bites.	(c) (1) cut-keeps clean, (dirt or dirty material away from cut). (2) bruise..... (ask doctor). (3) thorn pricks—keep clean. (4) insect bites (ask doctor).
(d) what things not to do.	(d) avoids doing those things which may make accident worse.
(e) that blisters are not to be broken.	(e) cases the blister to keep it from getting broken.

X. HEALTH ORGANISATIONS

Child should know —	Child—
1. That people work together to do things for the health of the people in the community.	1. Takes part in activities according to some of the following:
	Classes 1-2 (in school only) (a) Clean-up of school surroundings. (b) Health clubs, Health squads, Junior Red Cross.
	Classes 3-4 (a) Clean-up campaigns. (b) Clean-up Committee. (c) Scouts, Health Club, Girl Guides. (d) Junior Red Cross. (e) Safety-First Squad.
	Class 5 (a) Clean-up Committees. (b) General sanitation work at school. (c) Gardening and social services in school. (d) Physical Education. Social Organisations. (e) Balkanji Bari and such other organisations suited to the group. (f) Watch community work and join after 12 years old as appropriate. Gradually taking part. (g) Festivals, exhibitions and health department work. (h) Cleaning latrines, disinfecting water supply and first-aid.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
	2. Works with classmates to let others know what health practices are being carried out in his school. This could be done by inviting parents to school, writing stories to take home, or telling parents at home.

XI. FAMILY LIFE EDUCATION INCLUDING SEX EDUCATION

Child should know—	Child—
1. That his family is important to him for protection, love, physical necessities, fun, etc., and that every member of his family is important.	1. Appreciates his family and takes part in family activities of work, play worship, etc.
2. Proper conduct for his or her own sex at his (her) age.	2. Conducts himself (herself) according to accepted standards and in an acceptable way towards the opposite sex.
3. Proper conduct towards older people and toward younger people.	3. Conducts himself in proper manner towards older and younger people.
4. Knows proper social customs for his age, sex, family and community group.	4. Carries out appropriate social customs.
5. That his teacher will help him to get answers to some of the questions about his own development.	5. When he needs information about his own development, goes to teacher parents or other qualified source.
6. Understand in a general way how plants and animals reproduce their kind.	

APPENDIX E(iii)

Draft Syllabus on Health Education for Ages 11-14

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)

I. PERSONAL HEALTH

Students should know —	Student —
Knows the facts appropriate to his age :	
1. Reviews the learnings for ages (6-11).	1. Continues the health practices suggested for ages 6 to 11.
2. Learns a little of the "why wash hands, cover coughs, control spit".	2. Develops health habits in accordance with knowledge.
3. That good personal hygiene is a mark of some distinction.	3. Keeps himself well-groomed.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
4. That eyes need protection against dust, germs, etc.	4.(a) Protects eyes from dirty fingers, insects, etc. which might cause diseases. (b) Uses whatever test is available to check his vision: for example the Snellen Chart.
5. That sharp objects, insects etc. should be kept out of ears, eyes, nose.	5. Protects ears by keeping sharp objects insects, etc. out of them.
6. Diseases which harm eyes (trachoma, for example) cause, prevention and cure.	6.(a) Seeks treatment for an eye trouble which may develop into serious condition. (b) Wears, glasses if advised by medical adviser and they are available to him.
7. The proper care for his nose, how to breathe, etc.	7. Cares for nose in proper way.
8. Information about his teeth— temporary teeth permanent teeth how to keep teeth: clean and attractive.	8. Brushes or cleans teeth after eating according to directions.
9. That teeth are hard but they can be inred.	9. Protects his teeth from harm by not biting objects too hard, etc.

II. ENVIRONMENTAL HYGIENE (HEALTHFUL LIVING)

1. Reviews information for ages 6-11.	1. Continues the health-practices suggested for ages 6 to 11.
2. That light and air are needed in his house.	2. Helps to keep proper light and ventilation for his own house.
3. Why houses are built in certain directions (to wind and light).	3. Observes the way different houses are built.
4. Why certain materials are used for building houses.	4. Observes use of building materials in different houses.
5. That his own house and surroundings should be kept clean to be safe, attractive, and beautiful.	5. Helps to keep his own house and surroundings clean.
6. That it is his civic duty to help keep a safe and sanitary environment.	6. Performs his civic duty in keeping surrounding safe and sanitary.

III. CONTROL OR COMMUNICABLE DISEASES

1. Reviews learnings for ages 6-11.	1. Continues to emphasize practices listed for ages 6-11.
2. Expands his knowledge as to the causes and control of diseases such as— Malaria Cholera Tuberculosis Smallpox Typhoid Dysenteries, etc.	2. Keeps his immunizations up-to-date (in so far as facilities are available).

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
3. Some of the "common ailments" their causes and preventions.	3. Follows procedures to prevent and control diseases in accordance with knowledge acquired. Takes part in any school or community activities to help prevent or control diseases.
IV. FOOD AND NUTRITION	
1. Elementary knowledge about nutrition. (Reviews learnings for ages 6-11).	1. Continues to emphasize practices listed for ages 6 to 11.
2. Which foods in his community help to— build strong body, make good teeth and bones, give energy, keep skin, eyes, gums, etc. in good condition.	2. Eats those foods needed to build a strong body and keep it in good condition, if they are available to him.
3. That the needs extra amount of food during the fast growing period.	3. Eats a good supply of wholesome foods. Then eats small amount of sweets or other less nutritious foods.
4. The meaning of balanced diet and knows how to select a balanced diet.	4. (a) Selects foods to make a balanced diet (if given any choice). (b) Uses one of the plans available to him to calculate the nutritive value of food consumed:
5. That foods are classified as— fats, carbohydrates, proteins, and that his body needs some of each class.	5. (a) Wheel of Six Groups. (b) Green & Yellow vegetables. (c) Food value chart.
6. The value of a kitchen garden.	6. (a) Helps make and tend the kitchen garden at home or at school. (b) Helps gather, prepare, store, or sell the vegetables from the kitchen garden.
7. Appropriate "manners" in relation to serving and eating food.	7. Practices manners appropriate to his age, family, community groups.
V. HEALTH CONDITIONS IN VILLAGE, TOWN OR COUNTRY	
1. Reviews learnings listed for ages 6 to 11.	1. Continues the practices listed for age 6 to 11.
2. That certain sanitary standards must be maintained in order to protect the health of the people. He knows the special ones for his town or village.	2. Does his part to maintain the standards of cleanliness, protection of the water supply, etc. for his town or village.
VI. GROWTH	
1. Review learnings for ages 6-11.	1. Continues the practices listed for ages 6 to 11.
2. That growth is usually irregular during this stage of development.	2. Can give evidences that he is growing.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
3. That most girls grow faster than boys at this age.	3. Develops a good attitude towards his own growth even though it may be very rapid or quite slow.
4. That growth is usually rapid during this period of his life.	4. Gives attention to those health habits which may help his growth : proper rest, proper exercises, proper nutrition, cleanliness, immunizations.
5. Information about body and its functions as given for classes 1 to 5 and the following in addition: (a) Heart, its parts and function. (b) Circulatory systems, some of the parts (Veins, arteries, capillavies, etc.) and functions. (c) Glands (adrenal glands). (d) Excretory system, parts and importance to body functions. (e) Elementary knowledge of nervous system. (f) Parts of eye and seeing. (g) Parts of tooth, kinds of teeth, and their functions. (h) Elementary facts about needs of young children, and how to care for young children.	5. Does those things which promote growth and body function.
	6. When caring for young children uses knowledge learnt.
7. That medical inspection (check-up, etc.) is an important procedure assessing growth and health.	7. Takes advantage of opportunities to have medical check-up to assess growth and health status.

VII. REST, SLEEP, EXERCISE, POSTURE, LEISURE ACTIVITIES

1. Reviews learnings for ages 6-11.	1. Continues the practices listed for ages 6 to 11.
2. The amount of sleep needed for his age.	2. Sleeps the number of hours advised for him, if possible.
3. Good posture and breathing exercises.	3. Demonstrates good posture while sitting and standing.
4. New games and exercises to strengthen muscles and keep body in good tone.	4. (a) Takes part in appropriate games and exercises. (b) Shows good sportsmanship in games and sports.
5. Many kinds of leisure activities, games, sports, crafts, music, hobbies.	5. Carries on some worthwhile activity of his own choosing during leisure hours.

Things for the child to know (Health knowledge)	*Things for the child to do* (Health habits and practices)
VIII. CARING FOR ANIMALS.	
1. Review the learnings for ages 6 to 11 .	1. Continues the practices listed for ages 6 to 11.
2. That animals need protections from fast-moving traffic.	2. Helps keep animals (cow, buffalo etc.) out of heavily travelled roads.
3. Which animals may harm him and how.	3. Avoids dangerous animals.
4. What diseases may be passed to him from animals.	4. Carries out practices to prevent catching diseases from animals.
5. What to do in case he is hurt by an animal— for example, snake bite.	5. Carries out good first aid measures as needed.
6. The meaning of "prevention of cruelty to animal".	6. Is kind to appropriate animals.
IX. SAFETY, FIRST AID, HOME NURSING	
1. Reviews learnings for ages 6—11 . .	1. Continues to stress those habits for ages 6—11 as appropriate.
2. Safety rules needed for— cycle safety, safe swimming, safety with electricity, safety for camping and hiking.	2. Practices the safety rules which he has learnt.
3. What to do in case of an accident. .	3 Acts in emergencies in accordance with prior instructions and teachings.
4. Elementary facts about caring for sick person in the home.	4. Helps take care of members of family when ill.
X. HEALTH ORGANISATIONS	
1. Reviews learnings for ages 6—11. .	1. Continues those practices listed for ages 6—11.
2. The work of the village Panchayat with regards to health.	2. Co-operates with the village Panchayat.
3. The functions of the village health committee.	3. Co-operates with the village health committee.
4. Something of the functions of the Govt. Health Organisations in his village or town (Primary Health Centre, Hospital, etc.).	4. Carries out recommendations of the Government Health Services.
5. Something about the voluntary organisations in his village or town which are working to improve health.	5. Takes appropriate part in the work of voluntary groups.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
XI. FAMILY LIFE EDUCATION INCLUDING SEX EDUCATION	
1. Reviews learnings for ages 6—11 . .	1. Continues practices listed for ages 6—11 as appropriate.
2. The elementary facts about how he (she) came into being an how he (she) developed into a boy, or a girl of his/her present age.	2. Shows a mature attitude toward others of his own sex and of the opposite sex.
3. Something about the body changes soon to take place (or now taking place) and proper care of the body during this period: (Body function to be expected are: menstruation for girls, seminal omissions and voice changes for boys) a growth of pubic hair for both).	3.(a) Develops a good mental attitude toward the maturing processes. (b) Practices good personal hygiene. (c) Conducts himself (herself) in wholesome manner toward members of opposite sex and in accordance with accepted standards for his family and community group.
4. That the Government has Family Planning Scheme.	
XII. MENTAL HEALTH	
1. That good mental health is important .	Takes part in activities which are believed to contribute toward good mental health.
2. Some elementary knowledge about mental health and what makes a mentally healthy person	
XIII. PIONEERS IN HEALTH	
1. Names of some people who have contributed significantly to the health of the people — In India. From other countries of the world.	1. Appreciates the contributions of these people to modern life.
	2. Follows the advice of these leaders in so far as advised at present.

APPENDIX E (iv)

Draft Syllabus for Health Education for Ages 14-17

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
I. PERSONAL HEALTH (HYGIENE)	
Student should know—	Student—
1. Reviews learning for ages 6 to 11, and 11 to 14.	1. Continues to practice those health practices listed for age group 6 to 11 and 11 to 14 as needed.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
2. That personal hygiene is an important factor in being accepted into some groups.	2. Takes responsibility for his own personal hygiene habits and does the things he knows.
3. That he can influence younger children to develop good hygiene practices.	3. Helps brothers and sisters to develop good hygiene practices.
4. What diseases, can be spread by lack of the proper hygiene practices of : handwashing spitting improper control of excreta coughing too near others etc.	4. Helps prevent spread of diseases and recognizes the signs of health and the signs of disease in himself and others.
5. That child, youth, adult old person each has certain health needs.	

II. ENVIRONMENTAL HYGIENE

1. Reviews learnings for ages 6 to 11 and 11 to 14.	1. Continues to stress those practices listed for age groups 6 to 11, and 11 to 14 as applicable.
2. What are good standards of cleanliness and what is the proper use of each : ditches, nullahs, rivers, open spaces, recreational grounds, water supply, latrines, refuse pits etc.	2. (a) Makes survey of the conditions of things listed under 2 in the column "things for Student to Know". (b) Decides (with the help of teacher parents or other adult leader) what can be done to improve (if needed) of any of the conditions found in above survey. (c) Takes his part in making many of these changes and in keeping them in good condition.
3. Additional information about a good site for the house and what are some conditions which make a healthful, comfortable house : kitchen veranda toilet (latrine) direction of air direction of light outlet for water throwing of garbage furniture.	3. Helps to keep own home in best condition possible.
4. Additional information about what makes a good school environment.	4. Helps to make survey of school to see how well it comes up to good standard of cleanliness.

III. CONTROL OF COMMUNICABLE DISEASES

1. Reviews the learnings for ages 6—11, and 11—14.	1. Gives emphasis to practices listed for 6—11, and 11—14 as applicable.
2. The seasons of the year when certain diseases usually occur and why.	2. Does some research to determine why certain diseases occur at certain seasons.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
3. The leading causes of deaths in India 1st, 2nd, 3rd.	3. Does those things which will help to control communicable diseases in so far as is possible.
4. Increases his knowledge about the diseases, causes, prevention, cure and care of sick.	4. Assists in taking care of sick persons at home, if needed, and uses hygienic methods.
5. About longevity in India as compared to other countries of the world.	
6. The place of home nursing in the prevention of disease.	
7. Has a clear understanding of how germs cause diseases.	

IV. FOOD AND NUTRITION

1. Reviews the learnings for age groups 6—11 and 11—14.	1. Continues to emphasise those practices listed for ages 6—11, and 11—14, as applicable.
2. What constitutes a good diet.	2. Eats foods he knows, he needs for a good diet (in so far as possible).
3. How to plan a diet suitable for himself using local, inexpensive foods.	3. Makes several dietary surveys on himself other members of his family or others as directed.
4. To make dietary survey with some degree of skill, especially a survey of his own food intake over a period of days.	4. Calculates the food value of the diets surveyed in 3 above.
5. The chief food values in many of the foods in his community.	5. Recommends local foods in sufficient quantity to bring above diets in balance (if anyting was needed to balance them).
6. The value of vitamins, minerals, and other food nutrients.	
7. How to prepare food for sick person; especially what foods are most suitable. Follows directions of doctor if one has been in attendance.	7. (a) Serves food to sick person in a very attractive manner. (b) Keeps dishes and other serving utensils used in serving sick person separate from those used by others in the family. Washes them separately and thoroughly.

V. HEALTH CONDITIONS IN VILLAGE, TOWN AND COUNTRY

1. Reviews learnings for ages 6—11 and 11—14.	1. Continues those practices listed for ages 6—11 and 11—14 as needed.
2. About the health conditions in his own village or town (good, bad, improving, getting worse, etc.)	2. Lists specific things (with teachers' guidance) which can be done in his village to improve health conditions. If practical the teacher may ask the workers at the health centre to give basic information aboout conditions in the village or town.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
3. About the health conditions in different industries or kinds of work and what the owner (employer) does to promote health among the workers— clean surroundings— safe water sanitary latrines safe food good ventilation.	
4. About main health scheme of the government (Central and his own State Govt.) and what each scheme is attempting to do for the people.	4. Students does his part to carry out the Govt. health schemes aimed at improving conditions in his village, town or country. For example, student, can help interpret the need for these ; to his own family, neighbours etc.

VI. Growth

1. Reveiws learnings for ages 6—11 and 11—14.	1. Emphasises the practices listed for age groups 6—11 and 11—14 which are applicable to ages 14—17.
2. About the characteristics of growth for his own age group : for boys for girls.	2. Assists with the care of young children in the home applying the information which he has learnt in his health study at school.
3. Learns elementary knowledge about the development of children and some of their special needs, especially their nutritional needs and how to protect them against the communicable diseases.	

VII. Rest, Sleep, Exercise, Posture

1. Reviews learnings for ages 6—11 and 11—14.	1. Continues the practices listed for ages 6—11 and 11—14 as applicable.
2. What games and exercises are suitable for him (her).	2. Takes part in games and activities suitable for him and enjoyed by him (if possible).
3. The value of sleep and rest to himself.	3-4. Gets the amount of sleep needed if possible.
4. The amount of sleep he needs for his age, activity, etc.	
5. Girls know what exercises are suitable during menstruation.	5. Girls practice games and exercises during menstruation in accordance with recommendations and personal guidance.

VIII. Caring for Animals

1. Reviews learning for ages 6—11 & 11—14.	1. Continues to emphasize those practices listed for ages 6—11 and 11—14 as needed.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
2. About diseases passed from animals to humans.	2. Helps prevent diseases from animals to persons.
3. How to prevent diseases being passed from animals to humans or from animals to animals.	

IX. SAFETY, FIRST AID, AND HOME NURSING

1. Reveiws things listed for ages 6—11 and 11—14.	1. Continues the health practices listed for earlier ages if practical for this age group.
2. Accident facts including ; accidents due to different causes deaths from different accidents.	
3. Safety rules.	3. Obeys the safety rules in so far as possible.
4. Safest ways to do things : travelling (on foot or on cycle) to do his work build a fire play games.	4. Does things the safest ways in so far a is practical.
5. Knows first aid measures for certain injuries.	5. Applies first aid measures in accordance with instructions learnt.
6. Learns how to care for patient in the home and— to carry out doctor's orders. to make the patient comfortable, change his clothing, give bath, change bed, etc. to protect patient against other diseases and to isolate him from well people. to dispose of body wastes in same manner.	6. Assists with caring for sick persons in the home.
7. Knows to keep poison and other harmful substances out of reach of small children.	7. Helps to keep medicine and poison out of reach of small children.

X. HEALTH ORGANISATIONS

1. Reviews learnings for ages 6—11 and 11—14.	1. Continued practices listed for ages 6—11 and 11—14 as applicable.
2. Details about the work of the Village panchayat Health Committee Government health services Private doctors, etc.	2. Works with organizations (official or voluntrary) which are working to improve community.
3. What voluntary health organisations are represented in his community and what each is doing to improve the health of the people.	3. Serves on committee, if called upon.

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
XI. FAMILY LIFE EDUCATION INCLUDING SEX EDUCATION	
1. Reviews information listed for ages 6—11 and 11—14.	1. Continues practices listed for ages 11—14 as practical.
2. About the responsibilities for parenthood— of father, of mother.	2.(a) Takes his place in the family and community activities as expected for his age. (b) Takes part in creative activities in school and community. (c) Shows respect for other members and courtesy toward other sex.
3. About how the child comes into being (reproduction) and develops and about his need for— love, food, protection against accidents and diseases.	
4. About the Family Planning Scheme of the Central Health Ministry and why this scheme was undertaken.	
5. Legal information regarding sex.	
6. The proper personal hygience pratices needed and proper clothing for his age and sex. (especially menstrual hygiene for girls).	
7. Diseases affecting the reproductive organs.	
XII. CARE OF EYES, EARS, NOSE, TEETH	
1. Reviews learnings for ages 6—11 and 11—14.	1. Continues practices listed for ages 11—14 as needed at present age.
2. Increases his knowledge about the eyes, ears, nose, throat, teeth— what is needed to keep them healthy what diseases can attack each.	2. Does those things needed to keep his eyes, ears, nose, throat, teeth in good health.
3. Where to get treatment if eyes, ears, nose, throat, or teeth need care.	3. Seeks help when needed for treatent of of these special organs.
XIII. MENTAL HEALTH	
1. Reviews learnings for ages 11—14.	1. Continues to emphasise the practices listed for age group 11—14.
2. Expands his knowledge about what is good mental hygiene.	2-3. Helps to interpret to others about mental health and mental illness.
3. Something about mental illness.	

Things for the student to know (Health knowledge)	*Things for the student to do* (Health habits and practices)
4. What facilities (or lack of them) are available for the promotion of mental health and the treatment of mental illness.	
XIV. PIONEERS IN HEALTH	
1. Lists persons (in addition to those listed in age group 11—14) who have had an important part in health development in India; in other countries.	
2. Knows something of what each has done to bring about better health for the people of India and for the world.	

APPENDIX E (v)

TEACHING-LEARNING ACTIVITIES

Directorate General of Health Services, Central Health Education Bureau, Kotla Road, Temple Lane, New Delhi.

A resource list for use by those responsible for preparing syllabi, teacher guides, outlines for text books, for student work-type books, or for other such materials.

The activities listed herein may be modified to suit the facilities in the school, the resources and materials available, the competencies of the teachers and the age and maturity of the students. For this reason, these have not been categoriesed class-wise.

These activities have been organised under the same topic headings as in the draft syllabi for age-group 6—11, 11—14 and 14—17.

I. PERSONAL HYGIENE

1. The teacher may set example by practising those things which he wants the children to learn and to do.

2. Have drills on:

(a) Handwashing before and after eating.

(b) Washing mouth after eating.

3. Have health committee of students to help the teacher assess personal hygiene of the class members. The committee members may be called class monitors or "doctor and nurse". Items to be checked are :

(a) Hair (combed, clean).

(b) Face (clean).

(c) Mouth, tee (washed) nose, eyes.

(d) Clothing (clean-washed).

(e) Hands, feet (clean).

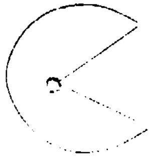
(f) Nails (cut short and clean).

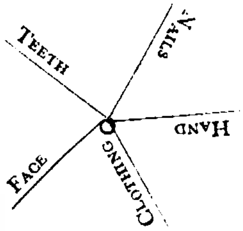
4. Encourage students to ask questions. Make use of these questions to teach lessons.

5. Have health inspections by teachers after prayers.

6. Have health parade for checking on a different practice each day. A game may be made as follows. The health practices (habits) which are being taught may be written in circular arrangement as :

Cut a circle out of cardboard with a section removed as:





Fasten the circular piece over the list of health practices with the centre coinciding, and in such a way so that the circle will spin around. Each day a child (one member of the health committee, or a different child each day until all in the room have had a turn) spin the circle. When it stops, one practice will be exposed through the section of circle which had been removed. This will be the practice for checking in the health parade that day: On certain days (one weekly, or twice monthly), all practices will be checked.

7. Have each child make a plan for checking his own habits. A small chart may be prepared with places to tick daily along side each habit.

8. Give a class award (weekly or monthly) for the class showing best achievement in cleanliness.

9. Students may compose songs, make a drama about personal cleanliness, good hygiene habits, etc.

10. In connection with art and craft work students may make a poster, make drawings (cartoons), prepare displays depicting hygienic habits.

11. Each child may tell (write, show by visuals) what he/she does to be neat and clean.

12. Arrange an exhibit of "minimum" essentials for personal cleanliness water, soap, twig for brushing teeth, etc.

13. Give a drama (make poster or chart) of helpers for cleanliness as: soap, water, comb, *datun*, etc. A child may carry a placard to indicate the article he is to represent, or he may have a head piece to represent the article, or he may carry the actual article itself.

14. Make a list of good health rules for an athlete. Compare with good health rules for average citizen.

15. Make a class health book. Each child may prepare one page each using a different health practice. Use some words and visuals to tell the practice, how to do it, why it is important. Put all pages together to form the book. A small committee (may be health committee) may prepare appropriate covers for the book. Show and explain to parents who visit the school.

16. Play "How not to do"—"How to do". The class may be divided into two groups. A member from one group will show how a health practice should not be done. Following this a student from the other team will show the correct way to do it.

17. Class compose a song about the good health practices they do daily. Put actions to the practices, sing and act the song.

18. Make list of health practices to be done in getting ready to come to school. These may be made into action-song as in 17, as "This is the way we wash our face when we get up in the morning," "This is the way I clean my teeth just after eating," etc.

19. Demonstrate, and have students practice, proper method for taking water from water storage-pot and drinking without contaminating dipping container (without touching the container to any part of the body). Dip out of the storage pot with a container with long handle, pour to hand and guide water into mouth. Thus the container is not touched except at end of handle. The water may be poured directly into mouth without touching to lips. Dipping container may be kept in suitable place to be clean.

20. Have discussion about washing teeth, taking bath, and about the importance of being neat, clean and tidy.

21. Show children how to make proper neem twigs for cleaning teeth, or have some child to show.

22. Have children to bring to class the different kinds of articles for cleaning teeth. Arrange a display. Discuss the uses, advantages or disadvantages of some.

23. Make a game. Have each child to close his mouth. Then write the number of teeth he thinks he has at the present time. Class may then be formed into teams of two on a team. Each counts the teeth of the other. Also the condition of the teeth may be assessed as to cleanliness, decay.

24. Compile a list of "things to do to have good teeth".

25. Make drawing, or make model out of clay, to show temporary teeth or each child may make model of his own temporary teeth at the present time.

26. List the foods to eat (those in his community) to make strong teeth and keep gums healthy.

27. "Give your teeth some chewing exercises." Tell what kinds of food give "chewing exercises".

28. "Teeth which last a life time." Each child may write a story about this topic.

29. Give a puppet show about how to keep teeth strong and shining. Simple hand puppets may be used. To make a puppet you will need.

(a) A small pice of stiff paper or light-wt. cardboard.
(b) Some string.
(c) Some old paper—like newspaper.
(d) A piece of paper or cloth to cover the head.
(e) A piece of cloth for dress.
(f) Needle with thread for sewing cloth for dress.
(g) Paint or crayon for making features of face.

Procedure

(a) Roll the small piece of stiff paper around the forefinger (it may be a little longer than the finger) tie with a piece of string.

(b) With paper still around the finger, wad up some old paper about the size for the head.

(c) Fold the head covering (paper preferably) over the wadded paper, bring around the paper which is around the finger and tie into place, making the face side as smooth as possible for painting face on.

(d) Sew the cloth for dress up one side to form tube. Turn wrong side out, insert head into tube with neck to top of tube. Fold the cloth around the neck of the head and tie securely. Turn the tube other side out and so the head is exposed.

(e) Put hand into opened end of cloth tube (bottom of dress), insert face-finger into tube (neck of puppet) cut slits in dress at appropriate place for thumb and middle finger to come through and serve as hands for the puppet.

(f) Paint appropriate.

(g) Use puppet in story. Give expression of the operator.

30. Make a large model of tooth out of clay.

31. Give three uses for the teeth.

32. "Have hanky drill" from time to time to see how many hanky or something to represent hanky as piece of clean cloth, etc.

33. Have demonstrations of how to use hanky properly.

34. Have children make rhymes and act them out as : "when we cover our cough with a hanky, all our friends will say thank you." "Turn your head away when you sneeze, and to your friends say excuse me please."

35. Make use to timely incidents for teaching. A child with cough may be urged to cover nose and mouth when coughing. Discuss with children why this is important to be done.

36. Demonstrate how to wash clothing (if practical). Discuss how soap removed dirt.

37. "Do not spit in public." Write a story about this health rule, giving reasons why we are not to spit in public.

38. Make rhymes about : "Don't spit."

39. Give procedures for cleaning the nose : how, when, where.

40. Use local proverb "Use a washed cloth even if it is an old one."

41. Make list of things to do to keep eye healthy. See how many can be depicted in Visual way : drawing, cartoon, model, drama, shadow play. (A shadow play may be shown by having actors, either actual children or puppets, back of a thin white cloth with light behind them in such a way that the shadow falls on the cloth and is seen by the audience).

42. Select a member of situations. Ask individual children to give one-sentence suggestions for care of eyes in each situtation :

(a) Studying at school.

(b) Playing a game on dusty ground.

(c) Seeing a movie.

(d) Reading in late afternoon.

(e) Wiping the face.

43. Write "Yes" or "No".

(a) A stick is a good thing to use to clean ears.

(b) If you blow the nose too hard, you may cause an infection in the middle ear.

(c) Earache often occur during or following such diseases measles, seamlet fever.

44. Make a list of things to avoid with regard to ears and hearing.

45. Compile a list of words about personal health practices. Have different children to give the meaning. This may be a game with one group telling words, the other group giving the meaning.

II. ENVIRONMENTAL HYGIENE

1. Have discussions about safe water:

(a) How to know when water is safe or when dangerous.

(b) Visit a safe source of water supply.

(c) Visit an unprotected supply (source).

2. Have demonstratiens of how to make water safe:

(a) Boiling.

(b) Using chemical (ask health inspector or doctor to give directions).

(c) Filtering (Urban water supply systems).

3. See pond water through hand lense or microscope.

4. If health centre personnel or other officials treat the water in well near school, students may be taken by teacher to observe and to hear explanation by people doing the treating (or explanation be given in teachers' guide).

5. Students may tell the story of how the well was treated and why? These may be told to parents when they go to their homes.

6. Find answers to the problem : why treat the water with bleaching powder? What preparation to use?

7. Explain and draw diagram (sketch) to show how faeces may reach the water in pond, tank after rain. Make model of pond in school premises or on sand table to illustrate why defecation should not take place in certain directions from the tank or pond.

8. Find out what the village panchyat does to help keep the water supply safe for drinking. A committee may visit panchyat to ask this. A report may be made to the class as to what was learnt.

9. Students may tell how they can help panchyat carry out their work

10. Give step by step description (and demonstration if practical) or how to wash eating and cooking utensils in sanitary manner.

11. If equipment is available have students to set up a "running water" system out of the clay water pot using siphon principle (tap, pipe are needed).

12. The well or pump should be at a reasonable distance (25 ft. minimum from latrine or manure pits. Make a model in loose dirt to show how water can seep through the earth.

13. Locate the source of the water supply for the village. Tell how it is made safe. If not protected, learn why it may not be safe.

14. Have discussion and demonstration of how to use the water tap.

(i) For drinking by placing hand under the running water to guide into the mouth without touching hand or mouth to the end of tap (wash hand before using).

(ii) How to keep tap clean. No touching, spitting, cleaning nose, etc.

15. List the benefits of a sanitary latrine, (the benefit of urinals).

16. Make a model or give description of the type of sanitary latrine used in the village, at school etc.

17. Write, or tell, an answer to this question: using a latrine can help prevent diseases. But many people object to using them. Why do you think people object?

18. Have a model of a latrine (in wood, clay, cardboard) or a drawing (sketch). Give explanation of the essentials as to the prevention of a disease. Also make a model of urinal.

19. Plan a story about latrine usage. Have one child or a small group to write the story (very brief) and make the visual for the different points to be told. These may be put on flash cards and used to show and tell to other classes in the school or parents.

Flash Cards.—A series of cards of size 8 × 10 (or larger depending upon distance from teacher to back of class). Each card has a visual (and may have some text) giving a point in the story. The person showing the cards, one at a time and in proper sequence, may tell the story of the picture or may expand upon the test which is on the cards.

20. When a sanitary latrine is being constructed in the village class discussion may be held at that time as to how it can help prevent disease if properly used. Perhaps one child or a small committee may be appointed to get information from those who are constructing or supervising the construction about how it is constructed, why it is in that location, and its benefits A report may be given to the class.

21. Make survey of class members to find out how many have latrine in the house or compound.

22. Form committees to help keep the school latrine and urinal neat and tidy. Write story on "why we should use the urinal and not go here and there".

If the school has flush system "and young children (or older ones too) enter the school from homes without this type of facility, should have teaching about how to use the flush system properly to keep in good working condition and to keep it neat and tidy. (Should we have a small guide on use, care, decoration of the different types of latrines)".

23. Write a story, give a dramia or puppet play about "A dirty, unattractive, school which turned into a clean, beautiful school." Tell what students,

teachers, parents did to help change it. Tell what can be done in our school to take it more like the school in the story.

24. The Health Minister in the school parliament may report on the health conditions in the school at the regular meetings, especially the things which have been done to improve condition.

25. Discussion, demonstrations and examples by teacher may give importance to dignity of labour—giving recognition to those who "do something to keep the place neat and tidy."

26. Discuss about the compost pit and soak pit. Tell the benefits of each.

(a) Make visit to compost pit. Soak pit.

(b) Demonstrate, or see demonstration by proper village leader, how to put the waste in to the pit and make compost.

(c) Write slogans about this relation to "Health and Wealth".

  (i) Our school is clean with help of the compost pit.

  (ii) We keep health when we keep clean.

  (iii) Manure is wealth when used in the kitchen garden.

  (iv) "Cleanliness helps bring food."

27. "The habits of the housefly are interesting, but disgusting." Write a story to give more light on this topic.

28. *Rats are in my village.*—Write a story telling.

(a) How many (few or many)

(b) Where do they live.

(c) How big (what size) are they.

(d) How do they act.

(e) What do they eat.

(f) How much do they eat.

(g) How many people could live on that amount of food.

(h) How to rid the village of these rats.

29. Divide the class into small committees (every child on a committee.) to keep different parts of the room and surroundings clean. Each committee may prepare a plan for work.

(a) What is to be done.

(b) How it is to be done.

(c) At what time (daily, time of day)

(d) Who will inspect the work.

(e) Which committee member will do what.

30. Have competition for cleanest class room. Have list of things on which it will be judged. Make weekly award. Also have competition on "cleanest and most attractively decorated."

31. Each child write slogans, rhymes, songs about a clean and tidy place.

32. Make use of flower pot and other suitable plants to beautify school and surroundings, and to produce some useful plants (in vegetable garden) fruit trees) (vegetables in pots which are both useful and decorative).

33. Make use of special occasions to improve the condition in the school environment.

(a) Good health week to show accomplishments and to take up some health activity.

(b) National Cleanliness Day on 2nd October to have special cleaning of rooms and surroundings, white-washing and decorating.

(c) Anti-fly week 1st week of July) campaign to get fly-breeding places cleaned up.

(d) Children Day Celebrations—14th November.

34. Observe the class room. Tell how the arrangement helps to have good light for study. See if any improvements can be made to have better arrangements, as not sitting in position so as to look directly into glare, etc.

35. If thermometer is available, have children read it and make record of readings at different times of day. Discuss reasons for any changes during the day.

36. (a) Make list of insects which are helpful to you. Tell how each helps.

(b) Make list of insects which are harmful. Tell in what way.

(c) How to treat bee sting, bite by big ant.

37. Make list of things used as medicines. Find out the use for each. Make an exhibit of as many of these as can be found.

38. Be a health detective. Make a list of all the things, with respect to the environment, which are done to keep the environment in good condition and to keep you healthy.

(a) Things done in home.

(b) Things done at school.

(c) Things done in village.

39. Divide the class into several small committees. Each committee may select a different health practice, with respect to the environment, to give story. Each committee may present the story in different way, drama, puppet, story shadow play, action song.

40. Write a wall newspaper about the environmental sanitation. It may be appropriate to emphasise different aspects according to seasons as "health precaution during monsoon," "thing to do during loo," etc.

41. Give an answer to the following :

(a) How to encourage rat.

(b) How to discourage rats.

42. Give reasons to the following questions.

(a) Why the fly is dangerous.

(b) Why the rat is dangerous.

43. Observe the preparation and cooking of the food in your home.

Make a list of all the things which are done during these processes to keep the food clean and sanitary.

III. CONTROL OF DISEASES

1. Refer to section on Environment Hygiene for many suggestions which are important in controlling diseases also

2. See film on "How Disease travels" (secure films from State Health Education Bureaux). Discuss what was seen and how it applies to lives of children in that school and village.

3. Puppet plays on prevention of some disease may be prepared by students and presented to other school classes or to parents.

4. Draw an outline of a human body. Indicate the places where germs (diseases) can enter the body.

5. Make a list of the things to do to keep germs from entering the body.

6. On an outline of the human body, indicate where germs get out or leave the body.

7. Make a list (ten or so) of great discoveries during past ten years which have had great influence on promotion of health and prevention of diseases.

8. A list of health rules for the prevention of communicable diseases may be prepared by the teacher with the help of students. Each child may then tell a story about one rule, each child taking a different rule to tell why it is important, how to carry out, etc.

9. Plan and make a dictionary (word list) of words about prevention and control of diseases. The types of words used will depend upon the class level.

10. Have children make riddles about prevention and contro l of diseases for example :

> "they are very very small,
> with your eyes you can't see them at all,
> they can come into the body very quickly,
> and make girls and boys very sick".
> (What are they ?)

11. Make drama to show how to prevent germs from getting into the body.

12. Make a wall chart. When a child is absent because of illness, record on the chart as to what was the cause of his illness. At the end of the month have a discussion as to how these illnesses may have been prevented. The health committee may have the responsibility for keeping the chart-up-to-date.

13. Have children write poems and songs about ways to prevent diseases to stay well and strong. A competition may be held to see who can include the greatest number of health practices in his/her poem or song.

14 Give reasons why each of the following need good health and should be free from communicable diseases.

(a) student
(b) mother
(c) father
(d) teacher
(e) farmer

(f) driver
(g) doctor (add others as appropriate)
(h) weaver

15. School water supply should be a model of cleanliness. Have discussions as to how to keep it clean. Have demonstrations to show how to keep it clean.

16. The school latrine may be a model of cleanliness and of proper use. A Committee may be assigned to see to the cleanliness.

17. Children may draw picture of school latrine and tell how it prevents spread of disease.

18. Make and act a drama "King of good health or Champion of good health" and "King of Ill Health" or "No Champion because of ill health." The King of good health (or champion of health) adopts the healthy habits like using latrine, washing hands. The "king of ill health" (No champion because of ill health adopts existing bad habits of insanitary practices like drinking from unsafe water supply and using flies as his agents.

19. Have discussion on "why well people should stay away from sick people."

20. Fields trips may be taken to health centre and to nearest laboratory if advisable, to learn what is being done to prevent and control diseases.

21. If a student becomes ill, have him to go home. If this is not suitable (because no one is at home), have him to sit apart from the others or remain outside the classroom to prevent others from "catching" his disease. However, he should not be exposed to severe hot, cold, wind, dust while sitting outside.

22. If you live in a one-room home and a person in the family comes down with a communicable disease, tell how is the best way or ways to keep him separated from the members of the family.

23. Visit a primary health centre if one is nearby or have one child tell about his visit to a health centre or clinic. Tell who works in a health centre (tell about one person if all cannot be remembered). Tell what each person does to help people stay well, or help us to get well if sick. Older students may give more details about work of the primary health centre.

24. Children may draw sketch, or bring specimen house-fly, and tell story of 'why he is dangerous to people'.

25. Have children collect fly larva (maggots) from cow dung heap. Make exhibit or drawing of fly, eggs, larva, pupa. Have children see some of these under hand lense.

26. Have dialogue on fly, "Who am I".

27. Read a dialogue, "I am a fly".

28. Have story or dramatization to show how fly travels from "filth to food", showing that it is the same as eating filth.

29. A flash card story may be used to stimulate questions and answers about habits of fly in relation to defecation habits of people.

30. Have demonstration of proper way to keep cut fruits and vegetables. They should not be cut until the person is ready to eat (buy) them. When cut and left exposed, fly sits on, dust, settles on, hawker may "breath" on.

If left uncut until ready for purchase and eating, these may be avoided. Any vegetables or fruits which are to be sold may be kept covered by hawker. Students may take tour through *bazar* to see how many hawkers are keeping fruits and vegetables in proper way.

31. Collect mosquito larvae with ink filter in tumblers from stagnant water for observation and for discussion purposes.

32. "The female mosquito and malaria Disease." Make a story to explain the relationship.

33. Have a survey to find out when houses were sprayed with D.D.T. (*See* date).

34. Have one or more children to tell how the house must be prepared for the spraying.

35. Have children tell what is the purpose of spraying (to rid the house of malaria mosquito) not of all mosquitoes. Why ?

36. Make inspection to look for mosquito larva near houses in broken pots (pieces of), stone grinding tools, or any other places where water is stagnated.

37. Give the ways that a soak pit can help prevent mosquito.

38. Have discussions or have children tell story or write story on dangers of smallpox and cholera.

39. Keep record of date of immunization (vaccination and inoculation).

40. Arrange for immunization to be done at school, if needed.

41. Teacher set the example by having vaccination first, before children.

42. Have class to make a class chart with name of each child, list of vaccinations and inoculations and date of each.

43. See that all children are immunised before entering school.

44. Pretend that you are going on a trip to a foreign country. Select the country and then find out the inoculations and other health measures required before a permit will be issued to you to enter the country.

45. Make a list of the vaccines manufactured in India. Tell the use of each. Tell how each is made and/or where made.

46. If it is possible, find out about some leaders in India who have done outstanding work in the control of communicable diseases.

47. "Vaccination is a Mystery" until you know the scientific facts :

(a) Write a story about why it seems a mystery.

(b) Write a story about the science of vaccination.

48. Have the health committee (or teacher may) to prepare questions about vaccination and inoculation. Make a game by dividing the class into two teams. The teacher or a student leader may ask questions first to one team then to next in order as team members are arranged in line. If first person on first team does not answer correctly, the question goes to the first person in team two. If he does not answer, it goes to second person in team one, etc. When the question is answered correctly, the team scores a point.

Another method of scoring is to have each child to drop out of the team when he answers incorrectly. The person remaining for longest time as the winner.

49. Have local health expert or have students in science classes to demonstrate culture tube or petridish culture of germs for children to see, discuss, write and tell what they saw.

50. Discuss with children about certain health practices and diseases as :

(a) Contact with certain insects may cause child to catch certain diseases (what insects and what diseases).

(b) Bad personal hygiene may help bring illness (what illness and how).

(c) Contact with sick people may cause child to catch that disease (How).

(Details about these are not to be taught to small children. They are to be told in a simple way).

51. Children may name and draw sketches of various worms which may be harmful to persons internally or externally. Tell in what way does each harm people ? How can this be prevented ?

52. Divide class members into small groups. Have each group take a different disease to prepare a drama, puppet story, shadow play, etc. to show that they understand the disease, how caused and what to do to prevent it.

53. Make list of diseases which are known about in this community. Tell which part of the body is most affected by each disease.

54. Ask children to make a list of all the communicable (catching) diseases they know. Tell how each is communicated and how to prevent.

55. Make a story on "Harish the Hookworm." Tell where he is born, how he gets into the human body, where he lives in the body, what he eats, and how to be rid of him, how the latrine can help.

56. What are germs ? How would you answer this question for a person who has never heard of germs before ?

57. Explain what is meant by "Communicable Diseases."

58. Make a list of "signs of illness", how to tell when your brother or sister or your friends are not feeling well, or may be having a disease.

59. Students plan and give dramas to show "this, not this", the correct and incorrect things to do for the prevention of one or more communicable diseases.

IV. FOOD AND NUTRITION

1. Have discussions about growth and food we eat.

2. Encourage children to tell what food they eat to make them grow.

3. List the foods which are found in children's lunch. Have them to list these. Discuss which foods help them to grow strong.

4. Have children tell foods they eat daily to help them grow strong.

5. Plan a puppet show about foods which help children grow.

6. Have children write story or tell why foods should be protected from flies, dust, etc.

7. Have a demonstration of covering food to protect it from flies.

8. May repeat the demonstration to show fly leg under lense to emphasize how fly can carry germs on leg.

9. Discuss how to store lunch box (tiffin) brought to school to keep it protected. Have demonstration to show.

10. Have children to observe food hawkers to find out :

(a) How food is protected from flies and dust ?

(b) Kinds of food being sold.

(c) If not, protected in what ways it is exposed.

Discuss these in class.

11. Find out about the laws concerning adulteration of food. Tell why you think each was passed.

12. List ways by which food may be protected from fly, dust. Demonstrate.

13. Give reasons why we should not eat food after flies have been sitting on it.

14. Tell ways to have foods safe for eating as (wash before eating, cook and serve hot, take off peel, etc.).

15. Tell what practices a person should follow to handle food insanitary manner ; as wash hands before handling, etc.

16. If mid-day meal or canteen service is provided at the school, plan ome discussions in connection with this activity.

17. Children may practise selecting a "balanced diet" or "Nutritious meal". This may be done by using :

(a) Actual foods (samples of food in raw stage may be used).

(b) Clay models, or models from other material.

(c) Pictures of foods.

(d) Names of foods.

18. Have each child keep record of the lunch and amounts of food he eats for entire day. Calculate (approximate) the nutrients (calories, vitamins, protein, etc.) which this food contained. Compare with a recommended standard.

19. Have a game to learn approximate amount of calories in various foods and amounts of foods, as ½ cup cooked polished rice, ½ cup "whole" rice, 1 small spoon mustard oil, 1 medium potato (a table of food values will be needed for reference. One may be in school library or bulletin, 23 D.G.H.S. may be secured).

20. Think up games to play using names of fruits and vegetables as "turn over the fruit basket." Each child takes name of fruit or vegetable. Children sit or stand in circle, one child is "It" stands in centre. "It" calls names of two fruits or vegetables. Children with those names exchange places in the circle. "It" tries to get into one of their places ahead of the one going to it. If successful, the child left out becomes "It". "It" may say "turn over the fruit basket" when everyone changes place. The game may be limited to fruits and vegetables high in "protective nutrients".

21. One exhibit of foods may be arranged as to :

(a) foods good for body building.

(b) foods high in protective values against infection and diseases.

(c) foods high in energy values.

22. In your study of plants, in science, tell which part of the plant is good for food.

23. Make a class chart to show what kind of milk each child drinks : Cow, buffalo, goat, made from milk powder.

24. Write a story about "Milk is a Good Food to make boys/girls Grow".

25. In schools where children bring lunch, each child may make a list of all ingredients in foods in his lunch. Discuss where each ingredient came from : (plant, animal, out of the garden, other state in India, etc.).

26. Make a list of plants (small plants, trees, vines, etc.) which provide food. Make a collection of foods from these and prepare an exhibit.

27. Make list, collection, and/or exhibit of the following foods :

(a) High in Vitamin 'A'.

(b) High in Vitamin 'B'.

(c) High in Vitamin 'C'.

(d) High in Protein value.

(e) High in Calorie value.

(f) High in Vitamin 'D'.

28. List some minerals needed by the body. See how many foods you can find which contain significant amounts of these minerals.

29. Make clay models of foods. Each child may choose some favourite model.

30. Where local foods of high nutritious value are available but are not being eaten, arrange to have several children to bring a small quantity to school (if it can be brought in its present form). Have discussions about the food. (If practical, have children to taste it unless there are strong religious reasons against it).

31. Make picture books, posters, booklet, chart or movie roll about foods which make us "Grow and Go". To make a movie roll each individual child may make a picture and story for one scene, using paper or cloth about 12" to 14" in size. These individual scenes may be put together (pasted, stapled, sewed) with the top of scene one to bottom of scene two, etc. The movie box is made by using an empty cardboard box of 14" to 18" or so. Holes are made near the top and bottom of the open side, round sticks (bamboo, reed, etc.) may be inserted through the holes to extend on both sides.

The beginning of the story (the bottom of scene one) may be fastened to the round stick in bottom of the box. The end of the story (top of the last scene) may be fastened to the round stick at top of opening of the box. Child turns bottom stick to move the scenes. Same child may tell the story or another child may tell the story. When the story comes to the end the upper stick may be turned and the story rolled back to be ready for the next showing Box. may be placed on table, chair, stool or on any object so as to be easily seen by those in audience.

32. Each child may write story about "Balanced Diet" and what it means in terms of the foods he eats.

33. Make a display of foods according to colours of our National Flag. Explain how this is a good plan to help "balance the diet."

34. Make a season chart—summer, winter, dry season, etc. List in proper place the vegetables and fruits more abundant durning each season.

35. Build a class food shop using empty tins and boxes. Label and put price on each (children may find out actual prices from bazar). Dramatise, healthful food shopping.

36. Make a "Good Health Train" Carriages may be made of clay, or other material or they may be sketched on paper. Lable carriages as "foods to make us grow", "Good Manners in eating", "Clean habits for food handling" and others suitable. Fill carriages with appropriate names models or real objects.

37. Children should share what they learn at school, with the family at home. Teacher and students may plan ways to do this.

38. School may invite parents to see food exhibits whenever they are prepared. Children may explain to parents about the exhibit and about different things in the exhibit.

39. Each child may make a list of all fruits and vegetables grown in gardens at his/her home. These lists may be put together into a book called "Vegetables and Fruits in our Garden." Students not having a garden may visit the bazar to see how many fruits and vegetables are there.

40. Each child may make a story about how he helps to make a good garden at his home. If he has no garden, he may write about this plan to make a garden or grow some plants in a pot.

41. Plant a school garden. Carry out many activities in connection with :

(a) Planning.
(b) Preparing the soil.
(c) Selecting seed or seedlings.
(d) Putting in plant food.
(e) Planting seed or setting seedlings.
(f) Giving water.
(g) Cultivating.
(h) Protecting (from animals, insects, etc.).
(i) Harvesting.
(j) Using products for food.

42. Make a list of the main food crops grown in your State. Draw a map of your State and put appropriate symbol at location where each crop is in most abundance.

43. Make a drama about different foods. Each child may select a different food and indicate how it helped him to grow (use foods familiar in the village).

44. Have demonstrations on simple cooking. If not practical, have discussions.

45. Make drama about "Keep the Vitamins" and not drain them away after cooking.

46. Give a step by step direction for making *chapati* including the washing of hands before beginning. Tell the different ingredients used in the *chapati*.

47. Tell how you learn to eat a new food or to eat food prepared in a different way.

48. Make a "food fair" or "food *mela*" to show all the different kinds of vegetables grown in the village. Notices about the fair or *mela* may be cut in shapes of familiar vegetables and information written on them.

49. Write puzzles about foods. Each student may write a puzzle about a different food. These may be put together in "Our Class Puzzle Book about Foods".

50. Tell how you help your mother (or other person in the family) prepare for the evening meal or clear up after the meal.

51. How would you answer this question, "Does it really matter what we eat every day ?"

52. How would you go about finding the answer to the question in No. 51 ? One class in school intimated that they would :

(a) Ask a doctor or nurse.
(b) Read books to find out.
(c) May we do some experiments.

53. In how many different ways milk is served : for example, curd

54. Write a story about "The Food I like Best of All."

55. How would you explain this statement, "The most expensive diet is not always the best diet."

V. Health Condition in Village, Town, Country

1. Have discussion about health conditions in the village.

2. Visit local health centre to learn about the work there.

3. Have role—playing (dramatisation) to help understand the work of public health personnel. A child may "play" the part (role) of a health worker to show and tell what each person does to help people have better health.

4. Children may tell about the different people in the village who do things to help them stay well and free from disease. Tell what each does.

5. Class, or a small committee, may make a map of the village. Indicate on the map, using suitable symbol, the following :

(a) the well or wells.
(b) public latrines and urinals.
(c) latrines in houses or compounds of houses.
(d) their homes.

(e) manure and compost pit.
(f) the school.
(g) health centre.
(h) panchayat.

6. Make list of things which students can do to help keep village clean. Each student may tell what he can do.

7. Find out if there is a Village Health Committee. If so, what things does the committee do for the health of the people.

8. Make a list of the health workers who live in the village. Make a list of health workers who come to the village (as sanitary inspector, doctor, etc.).

9. Make a model of a good village. Have different children to explain the different facilities in that model which make it a healthy place to live. Invite parents to see and hear. Also invite other classes in the school.

10. Make a model of a Primary Health Centre. Write and/or explain the various services from the health centre.

11. Find out about the laws and regulations in your state which are or protecting the health of the people.

12. List the things done by panchayats to help protect and improve the health of the community.

13. Make a drama to tell about the work of the people in the village who help to keep the village clean.

14. Write a wall newspaper about the drinking water supply in your village ; how it is protected, what needs to be done to keep it clean, etc.

15. Make a model of a sanitary well, and a model of an unprotected well. Tell important points about each model.

16. Tell what is meant by "safe water" for drinking. What is meant by contaminated water ? Show on a model or chart.

17. Tell how to make water safe for drinking.

18. List all activities which take place near the well. Students may indicate which ones (if any) should not take place near the well. Tell reason why ?

19. Use notice board (bulletin board) to display information about health and illness in village.

20. Students may locate places in village where flies are breeding. Tell what needs to be done to improve these places so that flies may not breed. Who can do it? Can students help?

21. Give answer to the question. "Where do mosquitos breed and live?

22. Tell, indicate by drawings, and/or make models of clay to show the life cycle of mosquito, house fly, etc. Tell the health implications for knowing the life cycle of each.

23. Make a model of the type of sanitary latrine used in your community. Explain how it helps present disease.

24. Give answers to this problem, keeping in mind that diseases can be spread through faeces. "If there is no latrine, how can you dispose of human faeces to as to protect others." "If there is no latrine at the school decide where and how to dispose of faeces."

25. "Our School has no latrine." How can we get one?

26. "Why do people like to visit a clean, attractive village?" Students may write, or tell, stories about this subject.

27. Do you agree with this statement, "greatest health resource" in any community is its people doing things themselves to have better health.

28. How would you explain this statement? "Health workers and health facilities alone cannot keep you in good health. You and everyone else must practise health habits."

29. Find out if your community has any special health problem as, lack of water supply, to many fly-breeding places, many people having trachoma, etc. Tell what school children can do to help solve the health problems in your village.

30. Tell why "air pollution" is a health problem in some communities.

31. List different ways the air may become polluted.

VI. Growth

1. Discussion about body growth.

2. Each child may be encouraged to tell how much he has grown since last year. They may give proof of growth by telling gain in weight and height, losing and growing teeth, skill gained in playing games, clothing has become too small, etc.

3. Children may be encouraged to tell things they have done to promote growth.

4. Using string (or tape measure if available) measure the following.

(a) around head just below the eyes.

(b) around the chest near the nipples.

(c) around the waist

of (i) a baby, (ii a) two-year old, (iii) a six-year old, (iv) yourself (age), (v) a twelve-year old.

Record the measurements.

Decide whether head or body grows more rapidly, and at what ages. Work out the percentage gain in head and in body growth.

5. Measure height at beginning of the school and again at about the middle of the term to determine the growth in height. Take weight if a weighing machine is available.

6. Tell how cells get food to grow on.

7. Make a list of diseases which may attack, a boy or girl during the growing years. Tell what can be done to prevent each of these diseases. Evaluate your health practices to see how you score toward preventing them.

8. Make a chart of the digestive system with appropriate explanation as to how it works to keep the body in good health and promote growth.

9. Make a chart showing the pathway of the blood through the body, using red to show blood carrying oxygen and blue to show blood carrying carbon-dioxide.

10. Make a diagram to show the path air travels during breathing.

11. Class may be divided into groups. Each group may take one system of the body, as digestive, respiratory, circulatory, etc. List all the organ in the system. Make a diagram chart to show the system. Tell the function of the system. Tell what is needed to keep it healthy and functioning. Tell what diseases are likely to attack the system or some organ in the system

12. Play different kinds of games. Try to locate the muscles which were most active in each game.

13. Each child may tell how many new (permanent) teeth he has already grown. He may also review what he is doing to keep his new teeth in good condition.

14. For younger children, name the parts of the body which can be seen (not the internal organs).

15. Each child may tell or write a story about why he likes to have a birth-day.

16. List three things good teeth can do for you.

17. List ways aching teeth may cause you trouble.

18. Tell the number of teeth in the first or temporary set Tell the number expected in the permanent set.

19. Make a sketch of the temporary teeth and then place in proper position, the first permanent teeth which will appear.

20. Make a list of things to do to have good teeth or to care for the teeth properly. Let a class member pantomine these for the class members to guess what is being portrayed.

21. Construct a set of teeth out of clay (temporary, permanent or your own at present).

22. Make a mould of the hand in clay at beginning of school term. Keep to the end. Make another at end of term to compare growth.

23. Name 3 important things children need to help them grow.

24. Give check tests on growth—(fill in blank with appropriate answers).

(1) The percentage of growth is farthest at what age?

(2) Each boy/girl has his own way of growing (Yes, No).

(3) Each child has ——————— temporary teeth.
(how many)

(4) ——————————things are good for cleaning teeth.

(5) Give three ways a person may grow ....

25. Make a game of naming the parts of the body.

VII. REST, SLEEP, EXERCISE, POSTURE

1. Discuss with children some reasons for having sleep. (to feel good, to grow, to be able to do school work better, to win in playing games, etc.).

2. Provide for varying kinds of activities including time for relaxing.

3. Plan and conduct a physical education programme suitable for children in that school : games, drills, sports, rhythms (see programme of physical training laid out by the Ministry of Education).

4. Have posture training : activities to encourage children to sit correctly for comfort and for health of the body.

5. Provide time in school day for outdoor play.

6. Discuss the safe places to play near the school and in the village. Have children give reasons why certain places are not safe.

7. Demostrate good sitting posture, good standing posture, and good walking posture

8 Tell why each thinks fresh air is needed for sleeping, for exercising.

9. Children may make speeches in their Parliament about rest and exercise.

10. Keep record of the number of hours of sleep student has each night for a week. Make a graph to show what percentage of the day he/she spends in sleep.

11. Make a list of "quiet type" games. Have different members of the class to direct (be leader foı) one game.

12. Make pantomine of "postures".

13. Write an explanation about the importance of proper practice for several days prior to entering strenuous games competition.

14. Collect pictures or make sketches to show which exercises may contribute to good posture.

15. Select some suitable story to read to the class during a "rest" period or child may tell a story.

16. Have activity of :

(a) One child demonstrate poor sitting posture. Have children tell him how to correct it.

(b) Have another child demonstrate poor standing posture. Children tell how to improve it.

(c) A third child demonstrate poor walking posture, including toes pointed in or toes pointed out to the extreme. Class give directions for improvement.

17. Have class to "sit tall", "stand tall".

VIII. CARING FOR ANIMALS

1. Give name of animals helpful to people. Tell how each is helpful.

2. Make list of names of animals which are harmful, and tell in what ways they are harmful.

3. Compare needs of animals to need of man.

4. Describe how the place where animals stay may be kept clean.

5. Have each child tell about the animals belonging to his/her family. How is each cared far? How is their living place kept clean?

6. Make list of diseases which can be transmitted from animals to man How may each be prevented?

7. Make a story about why animals should be kept in safe place.

8. How can diseases in animals be prevented?

9. Name foods which come from animals, birds, fish, chicken, insect etc.

10. Tell why the domestic animals need to be kept in a safe place.

11. Tell a story about an animal which got sick, and what was done for the animal.

12 Discuss and make chart to show how some diseases may pass from animal to man. What are these diseases? How do they pass?

13. Make list of :

(a) Things to do

(b) things not to do, to keep diseases from passing from animals to persons.

14. Tell how animals have an important part in production of certain vaccines.

15. Tell the story of "cow and the discovery of small-pox vaccination".

16 "Animals destroy food crops." How does this affect the health of people?

IX. SAFETY, FIRST-AID, HOME NURSING

1. Explain safe route to school.

2. Have each child tell his route to school.

3. Discuss safe ways to play certain games.

4. Explain hazards of unsafe activity (games).

5. Have children make list (with the help of the teacher) things to do in case accidents do occur. Also some things not to do.

6. Make list of "rules of the road," set up a "make believe" stop-and-go signal and have children to practice crossing the road at the proper time.

7 Make an exhibit of the "safe way to do things"—drawings, models etc.

8. Discuss safety practices during monthly meeting of the Red Cross Organisation.

9. Have demonstrations of what to do if clothing catches fire. Have children explain why this may be done.

10. Have demonstration of procedures for first aid to certain injuries and in certain emergencies.

11. Make a list of things "not to be done to injured person".

12. "Improvised bandages and treatment." If Red cross book specifies a certain bandage, cleaning agent or medicine and these are not available where injury occurs make a list of what to use in place of :

(a) Bandage.

(b) Cleaning agent.

(c) Medicine.

13. Conduct survey of school to see :

(a) good safety practices.

(b) safety hazards.

Suggest ways to improve the safety hazards and correct them if possible.

14. Observe students in other classes at school coming to and going from school to see good safety practices and poor safety practices. Make a wall chart of these.

15. Keep a record of all accidents which happen to students in the class (or school) during a month. Find out the cause of the accident. What part of the body was hurt. Discuss how it could have been prevented. Post in wall board for school to see.

16. (1) Survey the home :

(a) to see if toys or other things are scattered about and are causing safety hazards.

(b) to determine if there are safety hazards in electric wiring, use of electrical appliances etc.

(c) to list safety hazards in kitchen.

(d) to see if harmful liquids (kerosene) and medicines are out of reach of young children.

(2) Suggest ways in which the conditions may be improved.

17. Make a class list of the proper way to use electrical appliances, including the wiring for these.

18. Make list of toys suitable for small children. Tell why they are suitable. Make exhibit of toys, drawings of toys, or models (in clay).

19. Make list of toys not suitable for small children and tell why each is not suitable.

20. Assemble the minimum essential items for a first aid kit. Make display with explanation as to the use of each item in the kit.

21. Write a list of safety procedures to be followed in games. The class may be divided into groups with each group giving the safety procedures for a different game.

22. Make a map of the school district, village or community whichever is practical. Hang on the wall. Each time an accident occurs, put a coloured dot on the map at the location where it occurred.

23. If a daily paper is available to any members of the class, a record may be made of the accidents reported in the paper over a given period (one month, two months etc.). Tell how each may have been prevented.

24. Make a list :

(a) of rules to be followed by cycle rider.

(b) of rules to be followed by persons walking on road or lane where cycles are passing.

25. Demonstrate proper signals for cycle riders.

26. Demonstrate how to handle and use knife in safe manner. How to handle and use scissors in safe manner.

27. Tell the advantages of forming lines (one behind the other). Practise forming line at school when several students are going for the same thing.

X. Family Life Education including Sex Education

1. Discuss advantages of living in a family.

2. Tell what each member "of my family does to make a good home for me".

3. What "I do in my house to help the family".

4. How many brothers I have ?

5. How many sisters I have ?

6. Tell advantages of (a) Being the eldest child, (b) Being the youngest child, (c) Being in between the eldest and youngest.

7. Make a list of good manners practised in my community toward girls of my age, toward ladies elder to me (for boy). Have demonstration (role playing) to show some of these.

8. Make a list of good manners practised in my community toward boys of my age, men older than myself (for girls). Show some of these by role-playing (demonstration), drama or other means.

9. Make a list of "customs in my family" which show respect for others.

10. Role of father in the family. Write a story, discuss, dramatise, etc. Do the same for role of mother.

11. Write a story about "my appreciation for my family and home".

12. Write a story of how one plant comes from another. The class may be divided into groups. Each group may be given a different plant to tell how new plants come from that plant. Plants may be grown at school.

13. How new animals (including birds, insects, reptiles, etc.) come from other animals. Children may tell the names of the young baby of several animals. How do parent animals help the baby animals.

14. Young children may make a drama or "play at" being parents and children in the family.

15. Our family tree:

(a) Each student may construct his own family tree.

(b) Student may write story on how the family tree grows from generation to generation.

16. Responsibilities of heads (father, mother) of families for :

(a) Food and clothing for children.

(b) Shelter (house).

(c) Education.

(d) Medical Care.

(e) Others.

17. Children may find out what is the cost for the family for a month :

(a) for food.

(b) for rent (housing).

(c) for medical care.

Also student may ascertain the cost per family member.

18. Things to know when growing up as a boy or girl. (This may be developed in accordance with the particular situation as to how much about reproduction is to be taught in the school).

19. Tell about some interesting things you did with your family (played game, went on picnic, visited the temple, etc.).

20. "The more children in the family, the more is required for food and clothing." Tell how this is a fact ?

21. Make a record, or tell about, the special interests of some members of your family.

22. If you are in the age-group from about 11-14, you may notice how rapidly some of your classmates or friends are growing in height. Have you noticed any differences between height of boys and girls of the same age? Who is taller?

23. Tell the kind of work your father does, and why this is important work.

24. Tell the things your mother does. Tell why these are important.

25. In our village girls and women do the following kinds of work :outside the home list.

26. Write a story about "growing up as a girl" (for girls).

27. Write a story about "growing up as a boy" (for boys).

28. List games girls like to play. List games boys like to play. List some games boys and girls like to play together.

29. Write a story about "a fine lady". Give reasons why you think she is a fine lady.

30. Write a story about "a fine gentleman". What are the things which make him a fine gentleman.

XI. MENTAL HEALTH

1. Discuss what is meant by mental health ?

2. List ways a student may be helpful to others :
(a) at home.
(b) at school.
(c) in the village.
(d) to the neighbourhood.

3. Make a drama showing "consideration for others".

4. Have each student to write about this topic—"Politeness".

5. Write a story about a greedy person. Read the story to the class. (Teacher may review the stories and select some for reading to class). Talk about how class members may guard against greediness. Also class members may list some evidence of greediness they see among people they know. Can student list some of his own greedy actions ?

6. How would you answer this question ? "Why is it important to show consideration for others?"

7. Write a story about "My Personality".

8. "Understanding myself," what does this mean ?

9. Do you think it is possible to get good marks in school and yet not get a good education ? Yes,—No. If answer is Yes, how do you explain.

10. List the kinds of ways people react to criticism.

11. What do you understand as conscience ? How can conscience help us ?

12. You expect certain things from your parents. What can your parents expect from you ?

13. You may have a certain attitude toward foreigners. If you went to another country, would you be a foreigner ?

14. Write a story on, "What it means to be a good neighbour."

15. Can you give answers to these questions—
(a) "How do people feel when they get pass marks?"
(b) "How do people feel when they fail to pass the examination?"

16. Which person would you choose for your friend ?
(a) One who is kind, considerate, and helps his family, friends, and other people ; *or*
(b) One who is greedy, keeps everything to himself speaks in harsh voice to all people ?

Tell why you made the choice you did.

17. Have you ever heard one of your friends say to another, "You are just mean?" What caused such a statement to be made ?

18. "You should learn from your mistakes." What do you think this means ?

19. How does it feel to be "left out of the game" ? What can you do to see that no one is left out ?

20. If you had a choice, what hobby would you take up ?

21. Tell a story about "Being a good sport".

(a) In a game. (List other situations).

(b) In the classroom.

(c) At home.

22. Write or tell or dramatise a story about a person who took a stand for what was right regardless of what the others did.

23. "From immaturity to maturity." What does this mean to you ?

24. Do you ever wonder why you act as you do ? Do you wonder why your friends act as they do sometimes ?

25. Have you ever tried to make a list of things about your own personality ? Would you like to try now and what kinds of things would you list ?

26. Make a list of the ways people react to disappointments. Which ways do you think are more acceptable in your family, among your classmates, with your friends ?

27. Suppose your parents, your teachers, your boss in your job told you only of your faults. Do you think it would help you to do better, or would it only discourage you more ?

28. What are the things you do which make your parents happy ?

29. Do you think your parents sometimes worry about you ? What do you think makes them worry ?

30. Do you worry about anything ? If you are worried, with whom do you talk ?

31. Discuss what is meant by mental illness.

32. Do you know your community (State, etc.) looks after the people who are mentally ill ?

33. Name some kinds of workers who help people, have better mental health and help to cure the mentally ill (psychiatrist,) psychologist, (etc.).

34. What would you write in answer to this question, "What'is a good home?"

35. Bring to class a story you have found in a book or heard from a friend to illustrate kindness to others.

36. Why do you think that playing football can help you removing your "strong feelings inside you" ?

37. You may have heard the saying "It takes all kinds of people to make the world." What do you think this means ?

38. Keep a record for a week of all the things you did to help others.

39. List reasons why you think it is important to get along with others as :

(a) Individuals.

(b) Families.

(c) Communities.

(d) Nations.

40. Do you think some boys (or girls) worry about the changes in their body growth and functions (fast growth, voice change, menstruation, etc. What do you think causes them to worry ?

41. List the kinds of creative activities you and your friends like to do (draw, paint, make drama, make puppet story, write story, etc.).

42. Make a chart to show how you used your time during one day, one week, etc. Can you "budget" your own time or does some person have to tell you what to do, when ?

43. Make a list of the different kinds of problems, (difficulties)) person faces in growing up.

XII. HEALTH ORGANIZATION

1. Name school health council or other student health organisation in the school.

2. Have Health Minister and helpers to look after health work.

3. Student committee may write the weekly plans for the health work (in Plan Book).

4. Have Children's Parliament to look after the cleanliness of the school building.

5. Social Service Squad may be organised to look after surroundings, to remove dirt. If beyond their approach, they will seek out the street sweeper.

6. Health committee of Junior Red Cross may survey building for cleanliness.

7. Make list of—

(a) things to do and how to act as member of a committee or club.

(b) things to do as head of the committee.

8. Make list of things every student may do to keep the classroom and school surroundings in good condition.

9. Write stories about the health committee's work in school and why it is important (civic duty).

10. Tell some ways people work together to have better health conditions. Why is it important to work together ?

11. Give names of organisations in the village and tell the important work of each.

12. Teachers may take leadership to form a parent-teacher organisation.

13. If there is a science club in the school, some health projects may be taken in the club work.

14. If there is to be a Science Fair, some exhibits of projects on health may be prepared.

15. Form "Clean up Teams". Select team leaders. Divide the compound into sections. Each team "clean-up" the section assigned to it. Make a competition to :

(a) See which team gets the largest heap of trash.

(b) See which team has the "cleanest" place after cleaning.

16. Learn about Government Organisations and Agencies which work for the health of the people in this village.

APPENDIX F-I

Sanitary and Hygienic Requirements for the Construction of School Buildings in the Andhra Pradesh

(Elementary Schools)

In the selection of a site the following points should be weighed against considerations of economy, convenience, proximity to houses of parents, etc. :—

(i) A site should not be selected if its natural position is in a hollow or in the neighbourhood of high trees or houses which prevent the free circulation of air, and the access of sunlight to the school buildings. Shady trees are, however, of value in the playground provided that they do not unduly reduce the space available for play and are not planted so close to the school buildings as to obstruct the entry of light into classrooms, or in course of time, to cause damage to the structure.

(ii) Made-up soil should be avoided and, as far as possible, all soils which are specially retentive of moisture.

(iii) Sufficiency of space is important, and in this connection the possibility of future extension and the necessity of giving subsequent class-rooms the proper orientation should be borne in mind.

(iv) Channels and tanks in the vicinity are a disadvantage.

(v) The presence of rank vegetation, more especially prickly-pear, is objectionable.

(vi) The neighbourhood of dusty and noisy roads and of shops or factories should, as far as possible, be avoided.

2. All site plans should show the nature of the surroundings, the height of the neighbouring buildings, the north point and the direction of the prevailing wind.

3. *Orientation of Buildings.*—This will differ for different parts of the State and will depend chiefly on the best way to secure perflation of air. Subject to this the more buildings are lighted from the north the better.

4. *Floor Space.*—When funds are available, they should be utilised in providing floor space in excess of the following minimum requirements.

For elementary schools—9½ square feet per pupil.

Rooms which are intended to be used for practical work, such as drawing rooms, workshops, etc., should be carefully designed with a view to the nature of the work and the number of students to be accommodated.

5. *Composition of Floors.*—It is desirable that the floors should be made of a material which will admit of their being washed with water. Stone flagging or something better must be aimed at in rooms where desks or benches can be provided. Where the pupils have to sit on the floor, stone floors need not

be insisted on if objected to. At the same time it must be recognised that from the hygienic point of view they are to be preferred and the objection on the above score of their coldness can be met by providing boards or mats. But where this is done, the greatest care must be taken to insure that the mats are kept scrupulously clean.

6. *Seating Arrangements.*—The general principles which should govern the construction of desks are set forth in Annexure (i).

7. Forms without backs and desks are objectionable; type designs for desks are issued by the department.

8. Pupils should be seated in rows with the main light falling from the left side ; they should never face the light. The same remarks applies to teachers.

9. *Windows.*—Windows serve two purposes :

(a) Admission of light ; and

(b) Admission of air.

10. They should be placed at regular distances so as to ensure uniformity of light.

11. Window sills should not be more than 4 feet from the ground in rooms in which the scholars are seated at desks. When pupils sit on the floor the sills should come to within 2½ feet or 3 feet of the floor level. Windows for subsidiary lighting may have their sills more than 4 feet from the floor

12. The window area should not be less than one-fifth of the floor area and wherever possible the principal lighting should be from the north.

13. *Doors.*—Class rooms should not have to be used as passages from one part of the building to another. They should consequently not open into one another but into passages or varandahs. No classroom should have more than two doors and in most cases one is preferable. The door or doors should be at the teacher's end of the room.

14. *Height of Classrooms.*—The minimum height of the room in elementary schools should be of 10 feet to the tie beam when the room has an open sloping roof and 12 feet to the under side of the joint where the room has a terraced ceiling.

15. *Ventilation.*—Unless there are windows reaching to the top of the wall and capable of being opened ventilators are necessary near the top of the wall. The ventilators should be regularly distributed to the same way as the windows. For each pupil 48 square inches of open ventilator should be provided.

16. *Dimensions and Fittings of Classrooms.*—It is important that no school or classroom should be more than 24 feet in width, or otherwise, the rows of pupils will be too long to be properly controlled by the teacher. The length of a room must depend on the number of classes to be held in it.

In the case of a school divided into a number of classrooms, the dimensions of any room should not exceed 24 feet, that is an approximate square. If it is admitted that a square is the best area for teaching purposes, the length of a classroom in a one-roomed school should approximate closely to some multiple of the width. Ample wall backboard space should be provided especially on the wall at the teacher's end of the room which should be unbroken by doors, windows or cupboards. Cupboards recesses in other walls should be provided, also recesses with open shelving. Rails under the cornice for hanging maps, pictures and diagrams are essential. The smallest class room for 40 boys in dual desks should be 21 feet wide and 23 feet long.

17. *Roofs.*—The roof should, as far as possible, be impervious to heat.

18. *Sanitary Arrangements.*—Latrines should not be placed nearer than 30 feet to any school building. They should be so situated that the prevailing wind will not blow from them in the direction of the school.

19. The type designs of the sanitary department should be consulted, when planning latrines.

20. For elementary schools separate urinals and latrines should be provided. Separate accommodation should in all schools be provided for the teaching staff.

21. The number of latrine seats should be on the following scale :—

	Boys	Girls
Under 30 Children	1	2
Under 50 Children	2	3
Under 70 Children	2	4
Under 100 Children	3	5
Under 150 Children	3	6
Under 200 Children	4	8
Under 300 Children	5	12
Under 500 Children	8	20

22. There should be in addition for boys urinals at the rate of 4 per cent or if separate urinals are not provided the number of latrine seats should be correspondingly increased.

ANNEXURE (I)

1. The seat should not be so high as to prevent the child resting its feet upon the floor, or on a footboard; and if the latter, the knees should not be elevated.

2. Assuming a child to be sitting upright in his seat and the arms to be hanging freely down the edge of the desk next the body should be about an inch higher than the level of the elbows in the case of boys, and from 1½ inches to 1¾ inches in the case of girls.

> (If the desk be higher than this, there is a tendency for the boy to be twisted and for one shoulder to be raised above the other with the consequent risk of lateral curvature of the spine).

3. A line dropped from the edge of the desk ought to strike the edge of the seat or a point an inch or two within it.

> (This arrangement obliges the child to assume an upright position which is best for the eyes and the spine).

4. No seat should be without a back, and the top of this should be one inch lower than the edge of the desk in the case of boys, and one inch higher than the edge of the desk in the case of girls, (In schools which are graded, great inequalities will be found in the size of the scholars in each room, to meet which it is desirable to provide three sizes of desks. In schools of mixed ages there should be a large number of sizes).

5. A desk must not be flat. It should slightly incline towards the child.

6. The seat should not be flat, but saddle-shaped. Change of position will be desirable.

7. The desks must be easy of access yet compactly arranged. The angle of vision for the teachers should be not more than 45°.

1. *Height and Dimensions.*—The sloping part of the top should be not less than 12 inches in width.

2. The inclination should be about 2 inches and the slope should be about 1 in 10.

3. The flat portion of the desk with grove should be from 3 inches to 3½ inches in width.

4. The proper height allows the forearm of the seated child to rest horizontally upon the desk without discomfort—

(a) Youngest children—20 inches to 25 inches to the middle of the slope.

(b) Intermediate children—22 inches to 26 inches to the middle of the slope.

(c) Oldest scholars—30 inches to 36 inches to the middle of the slope.

The seat should be 16½ inches high.

5. The backrail should not be more than 7 inches for younger children and not more than 10 inches for the older ones.

6. The minimum space for each child should be 20 inches ; 22 inches would be better.

7. The width of the gangway should be 18 inches atleast.

8. The seats should be 8 inches wide.

APPENDIX F-II

Sanitary and Hygienic Requirements to be Observed in the Construction of School Building in the State of Andhra Pradesh for Secondary Schools

Selection of Sites

In the selection of site, the following points, should be weighed against considerations of economy, convenience, proximity to houses of parents, etc.

(i) A site should not be selected if its natural position is in a hollow or in the neighbourhood of high trees, or houses which prevent the free circulation of air and the access of sunlight to the school buldings. Shady trees are, however, of value in the playground provided that they do not unduly reduce the space available for play and are not planted so closed to the school buildings as to obstruct the entry of light into the classrooms, or in course of time, to cause damage to the structure.

(ii) Made soil should be avoided, and, as far as possible all soils which are specially retentive of moisture.

(iii) Sufficiency of space is important, and in this connection the possibility of future extension and the necessity of giving subsequent class-rooms the proper orientation should be borne in mind.

(iv) Channels and tanks in the vicinity are a disadvantage.

(v) The presence of rank vegetation, more especially prickly-pear, is objectionable.

(vi) The neighbourhood of dusty and noisy roads and of shops or factories should, as far as possible, be avoided.

2. All site plans should show the nature of the surroundings, the height of the neighbouring buildings, the north point and the direction of the prevailing wind.

Orientation of Buildings

3. This will differ for different parts of the State and will depend chiefly on the best way to secure perflation of the air. Subject to this the more buildings are lighted from the north the better.

Floor Space

4. When funds are available, they should be utilised in providing floor space in excess of the following minimum requirements.

for secondary schools . . .	11 sq. ft. per pupil
for technical schools . . .	15 sq. ft. per pupil

NOTE :—The minimum floor space provided in training colleges shall be 15 sq. ft. per pupil. Rooms which are intended to be used for practical work, such as laboratories, drawing rooms, whorkshops, etc. should be carefully designed with a view to the nature of the work and the number of students to be accommodated.

Composition of floors

5. It is desirable that the floor should be made of a material which will admit of their being washed with water. Stone flagging or something better must be aimed at in rooms where desks or benches can be provided. Where the pupils have to sit on the floor, stone floors need not be insisted on if objected to. At the same time it must be recognised that from the hygienic point of view they are to be preferred and the objection on the score of their coldness can be met by providing boards or mats. But where this is done, the greatest care must be taken to ensure that the mats are kept scrupulously clean.

Seating Arrangements

6. The general principles which should govern the construction of desk are set forth in the Annexure.

7. Forms without backs and desks are objectionable. Type designs for desks are issued by the department.

8. Pupils should be seated in rows with the main light falling from left side ; they should never face the light. The same remarks applies to the teachers.

Windows

9. Windows serve two purposes :

(a) Admission of light

(b) Admission of air.

10. They should be placed at regular distances so as to ensure uniformity of light.

11. Window sills should not be more than 4 fee from the ground in rooms in which the scholars are seated at desks. When pupils sit on the floor the sills should come to within 2 feet or 3 feet of the floor level. Windows for subsidiary lighting may have their sills more than 4 ft. from the floor.

12. The window area should not be less than one-fifth of floor area and whenever possible the principal lighting should be from the north.

Doors

13. Class-rooms should not have to be used as passages from one part of the building to another. They should consequently not open into one another but into passages or varandahs. No classroom should have more than two doors and in most cases one is preferable. The door or doors should be at the teachers end of the room.

Height of Classrooms

14. The minimum height of the room in secondary schools and technical schools should be 12 feet to the tie beam when the room has an open sloping roof and 14 feet to the under side of the joints where the room has a terraced ceiling.

Ventilation

15. Unless there are windows reaching to the top of the wall and capable of being opened, ventilators are necessary near the top of the wall. The ventilators should be regularly distriubuted in the same way as the windows. For each pupil 48 square inches of open ventilator should be provided.

Dimensions and Fittings of Classrooms

16. It is important that no school or classroom should be more than 24 feet in width, otherwise the rows of pupils will be too long to be properly controlled by the teacher. The length of a room must depend on the number of classes to be held in it. In the case of a school divided into a number of classrooms, the dimensions of any room should not exceed 24 feet × 25 feet, that is, an approximate square. If it is admitted that a square is the best area for teaching purpose the length of a classroom in a one-room school should approximate closely to some multiple of the width. Ample wall black board space should be provided especially on the wall at the teachers end of the room

which should be unbroken by doors, windows or cupboards. Cupboards recesses in other walls should be provided with open shelving. Rails under the cornice for hanging maps, pictures and diagrams are essential. The smallest class-room for 40 boys should be 21 feet wide and 23 feet long.

Roofs

17. The roof should as far as possible, be impervious to heat.

Sanitary Arrangements

18. Latrines shoud not be placed nearer than 40 feet to any school building. They should be so situated that the prevailing wind will not blow from them in the direction of the school.

19. The type designs of the sanitary department should be consulted when planning latrines.

20. For boys schools separate urinals and latrines should be provided. Separate accommodation should in all schools be provided for the teaching staff.

21. The number of latrine seats should be on the following scale :

	Girls	Boys
Under 30 Pupuils	1	1
Under 50 Pupils	3	2
Under 70 Pupils	4	2
Under 100 Pupils	5	3
Under 150 Pupils	6	3
Under 200 Pupils	8	4
Under 300 Pupils	12	5
Under 500 Pupils	20	8

22. In addition there should be urinals for boys at the rate of six urinals compartments, each 20 inches wide for every 100 boys or if separate urinals are not provided the number of latrine seats should be correspondingly increased.

23. If the flush-out system of latrines is in vogue, the number of water closets should be on the following scale:

Number of Pupils	Scale of Water Closets	
	Girls	Boys
25	1	1
50	2	1
75	3	2
100	4	2
150	6	3
200	8	4
300	12	5
500	20	8

In addition provision should be made for urinals at 6 per 100 boys.

ANNEXURE

The requirements of suitable desks and seats are, that the pupil should sit with body fairly vertical for writing and be able to lean back for reading without any danger of curvature of the spine in either case. He should not stop for long or sit in any way askew and the book or paper should rest at a comfortable distance below his eyes.

Not more than 4 pupils should be seated at one desk. Individual chairs and tables to suit pupils may preferably be used in all forms of classes.

The following table of measurements is intended as a guide to school managements in the construction of desks and seats:—

Measurement in Inches

TABLE

1. Height of pupil.	Below 48	49 to 51	52 to 55	56 to 59	60 to 63	64 to 76	68 and above
2. Distance from top of base to top of seat board.	12½	14	15	16½	18½	19½	20
3. Width of seat board.	9	9½	10½	11	12	12	12
4. Distance from top of seat board to front edge of desk measured perpendicularly.	9	9½	10	10¾	11½	12	12½
5. Distance between front edge of desk and front edge seat measured horizontally.	3	3½	3½	4	4	4½	4¾
6. Width of top of desk (inclined part).	11½	12	12½	13½	13	14	14
7. Width of top of desk (horizontal part).	3	3	3	3	3	3	4
8. Depth of book-shelf.	10	10	10	10	10	10	10
9. Distance of same from top of desk.	5	5	5	5	5	5	5
10. Slope of back of seat.	1	1	1	1	1	1	1
11. Distance from top of seat board to top of back of seat measured perpendicularly.	9	9½	10	11	12	12½	13
12. Distance from top of base to back edge of desk.	23½	25½	27	29½	32	33½	35
13. Foot rest . . .	Front edge flush with base : back edge link above base.						
14. Space for each pupil .	18	19	20	21	21	22	28

APPENDIX F-III

Government of Bihar

Primary School Building

Dimensions of site.—The following sizes of sites for school buildings and playgrounds are prescribed for the guidance of local officers :

No. of pupils expected to study in the school	No. of units required	Area for the school site (acres)	Area for the play-ground (acres)
40 or below	1	¼ to ½	½
40 to 80	2	¼ to ½	1
80 to 120	3	½ to ¾	1 to 2
120 to 160	4	½ to ¾	1 to 2
160 to 240	4 to 6	½ to 1	2 to 3
240 to 320	6 to 8	1	3 to 4
320 to 400	8 to 10	1½	4 to 5

The playground should be as near as possible (but not necessarily adjacent) to the school building as the local conditions permit.

Other requirements regarding site.—(a) Sites for primary building should as far as possible be centrally situated to secure easy access to the school by the pupils of the village and should have sufficient open space alround. If such a site is not available, a site on the outskirts of the village but not far away from the village should be selected. As far as possible, preference should be given to suitable sites close to Harijan or aboriginal *tolas* of the village.

(b) There should be an open space to the extent of 40 to 60 feet al round the building.

(c) The site should be on a slightly elevated ground with natural surface drainage to avoid accumulation of storm water. It should also be above the highest flood level in the locality.

(d) The sub-soil should be dry to avoid dampness. Recently filled up land should be avoided.

(e) There should be no wet vegetation such as paddy fields, etc. within 50 yards of the site.

(f) There should be no public latrines, wood depots, milch cattle and other stables, dhobi-ghats, dispensaries, manure-pits, burial and cremation ground in the close vicinity of a school site.

(g) As a noisy site is undersirable, there should be no weekly bazaar, factories, etc. in its proximity.

(h) The site should be very far away from offensive trades, *viz.*, lime kilns, brick and tile kilns, tanneries, etc.

(i) Nallas, rivers, tanks, canals, brooks, and channels and high trees in the proximity of a school site is undesirable.

(j) The site should be away from high roads to avoide dust nuisance. The frontage of a school building to main roads should be avoided.

(k) There should be a sufficiently large playground for each school preferably on the sunny side and there shady trees would be of value provided that they do not unduly reduce the space available for play and are not close to the school building as to obstruct the entry of light into the classroom or in course of time to cause damage to the structure.

Selection of sites.—Suitable sites for construction of school building in all villages where schools are necessary should be selected as quickly as possible irrespective of the time-table for the actual construction of the school building. If the selection of site is postponed it is likely that good site that may now be available may be diverted to other uses with the result that when other arrangements for construction have been made, it may become very difficult to find a suitable site.

It is necessary to take every care in the selection of a good site for a schoo Local prejudices and differences of opinion may have to be overcome.

Broadly speaking, the site should be such as to meet not only the present needs, but also future requirements. Apart from the need of the school building itself, provision should be made for the requirements of craft teaching. It should not be considered a disadvantage if the site is at a short distance, from the village proper. The proposed site should, however, fit in with the requirements of the general community life in the village.

Doors and Windows.—The *chaukhat* for the door should be 3½′ wide and 6½′ long. The dimension of the wood used for the *chaukhat* should be 3″ × 4″. The *chaukhat* for the windows will be 3′ wide and 4′ long. The dimension of the wood used should be 3″ × 3″. The window and door shutters should be battened and 1″ thick Sal wood should be used for the purpose. The *chaukhats* should be also of Sal wood. Care should be taken to see that the wood is well seasoned and free from saps and knots. The windows will be provided with mild steel rod vertical gratings. The rods should be 5/8″ in diameter and should be placed at a distance of 4½″ from each other centre. The door as well as all the windows should have bolting arrangements from inside. The door should also have a pair of iron rings on the outside for locking arrangement. The window shutters should be so fitted as to open outwards. The door shutters should be so provided as open inwards. Each door shutter should be fixed to the *Chaukhats* with three iron hinges 3″ long and each window shutter should be fixed to the *Chaukhats* with two iron hinges, of the same size. Doors and windows should be given two coats of green paint. The second coating should be given only after the first one has fully dried up.

Blackboard.—A blackboard of 3′ × 4′ size should be constructed in cement in the centre of the back wall of the building. The cement mortar will be prepared out of cement and sand in the proportion of 1:3. The mortar so prepared should be mixed with small quantity of black oxide colour.

The top surface should be given a smooth finish. A suitable bead with the mortar should be made all round the edges of the blackboard. The bottom of the blackboard should be about 2½′ above the floor level of the room.

All school buildings should be constructed as to face either north or south, unless there is special local circumstances for facing the building in some other direction.

APPENDIX F-IV

Government of West Bengal, Directorate of Health Services

Construction of School Buildings—Code of Basic Requirements

1. *Site.*—This should be dry and permeable. Made soil as well as soil specially retentive of moisture, should be avoided. The site should have proper, preferably natural, drainage. Presence of rank vegetation, ditches, nallas, dobas, etc., in the vicinity should be avoided. Presence of offensive trades, dusty roads, insanitary places, disorderly houses etc., in the vicinity is also undesirable. All these should be avoided as far as practicable.

Area of the site.—The ratio of built to unbuilt area should be 1 :3 or every student should have 30 sq.ft. of open space whichever is greater.

Playground.—Every school must have a playground, whether within the school compound, if this is spacious, or at a reasonable distance. The area of it should preferably be 8,000 sq.ft. for every 200 students.

2. *Buildings.*—The buildings should not preferably consist of more than two storeys. In case of extension of school building construction of a second parallel building at a distance of height of the higher building or a second storey should be preferable to construction of wings at right angles to the original building.

If the roof is made of GI sheets or Asbestos, this should have ceiling of suitable material underneath to protect the students from excessive heat during the summer days.

No dwelling house should be built as a part of the school building, neither there should remain any connection between a dwelling house and a school building.

3. *Classroom.*—No classroom should accommodate more than 50 student or shall be a passage room. Each classroom should have independent entrance.

Classrooms should preferably be square in shape, as far as practicable. Long narrow rooms should be avoided.

4. *Floor space and wind space.*—(a) Each student should have at least 8 sq. ft. of floor space in the classrooms excluding rooms for special classes; (b) In science class and laboratory—not less than 30 sq. ft. per student; (c) In hostels and dormitories—not less than 60 sq. ft. per student. The rooms should be not less than 10 ft. high.

5. *Verandah and Corridor*—

Verandah—should not be less than 6 feet wide.

Corridor—should not be less than 8 feet wide.

6. *Ventilation and lighting.*—Door and window spaces should not be less than one fifth of total floor space of the room. The windows should open directly to the sky. In addition to these, ventilators may also be provided.

Light should come preferably from left side of the students and in no case from the front. The building should be planned accordingly.

The windows sills should be placed not more than 4 feet and not less than 3 ft. and a half above the floor of the room. The window heads should reach as near the ceiling as possible.

7. *Water supply.*—Every school should have adequate supply of wholesome drinking water. In absence of filtered water supply there should remain at least one deep tubewell in each school.

No source of drinking water supply should remain within 50 ft. of latrine and urinals.

8. *Sanitary Arrangements.*—(a) Latrines—These should be sanitary preferably of Septic Tank Type.

Rate of latrine Seats

	Boys	Girls
Latrines		
For first 100 students	1	3
For each subsequent 100	1	2
Separate latrines should be provided for teachers and students		
Urinals		
For first 100 students	1	X
For each subsequent 100	1	X

The septic tank latrines and urinals should be located at a distance of not less than 20 ft. from the school building. In hostels and dormitories, the latrine seats should be double of that prescribed for days schools. The number of urinals will be the same as in the case of day schools.

APPENDIX G

School Health Administration

Chart showing the administrative and organisational set-up recommended at the National State and Local levels for school health and school meal programmes.

	Advisory Bodies	Executives
(i) Centre . .	National School Health Council—40 members. Chairman—Non-official Full-time Secretary—Official Three part-time technical Joint Secretaries drawn from the Ministries of Health, Education & Agriculture.	(i) School meal and health education section in the Ministry of Education. (ii) School health section in the Ministry of Health. (iii) School meal (food supply and storage) section in the Ministry of Food & Agriculture.
(ii) State . .	State School Health Council—25 members. Chairman—Non-official Secretary Joint Secretary. { Directors of Education and Health. (assisted by) Chiefs of School Health School Meal & Health Education Bureaux.	(i) School Meal & Health Education Bureaux in the Education Department. (ii) School Health Bureau in the Health Department. (iii) Department of Food and Agriculture.
(iii) District .	District School Health Committee as Sub-Committee to the District Development Council. Chairman . Chairman of the District Development Council. Joint Secretaries. District Education Officer and District Health Officer.	(i) District Education Officer. (ii) District Health Officer. (iii) District Agriculture Officer.
(iv) Block . .	Block School Health Committee as Sub-Committee to the Block Development Council. Chairman . Chairman of the Block Development Council. Joint Secretaries Medical Officer of the primary health unit and Inspector of Schools of Education Department.	(i) Medical Officer of the primary health unit. (ii) Inspector of Schools. (iii) Agriculture Inspector.

	Advisory Bodies	Executives
(v) Local . .	Local School Health Committee of the Village Panchayat.	(i) Health Team of the primary health unit. (ii) Headmaster and Class teacher. (iii) Village Panchayat. (iv) Mukhya Sevika, Gram Sevikas and Gram Sevak of Community Development Department. (v) Mahila Mandal.

HEALTH HABITS TRAINING BOOKLET

Name of the School ____________________

Union Board ____________________ Village ____________________

Class ____________________

Name of Student ____________________

Date ____________________ (Title Page)

Date of Birth Date of Health Examination

Name of disease	Details of work	Date
Malaria .	Whether taking quinine.	
Pox . .	Vaccination	
Cholera .	Injection	

Father/Guardian Teacher

(Second page)

Date ______________

Twelve ways for keeping health	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. I got up half an hour before sun-rise.																															
2. I went for nature's call in the morning.																															
3. I clean my face, teeth and tongue.																															
4. I took my bath after massaging oil.																															
5. I have taken food slowly with proper chewing.																															
6. I put on clean clothes.																															
7. I sit erect in the class.																															
8. I took adequate tiffin in the school.																															
9. I have taken some fresh fruits.																															
10. I have played at least one hour in the open space in the afternoon.																															
11. I have taken at least four glasses of water.																															
12. I went to bed in a mosquito curtain before 10 O' clock.																															

(For 12 months)

Term Chart

	First	Second	Third
Weight			
Height			
Circumference of the chest			

Back page of the booklet

Marks according to merit
81 — 100
51 — 80
0 — 50

HEALTH HABITS TRAINING CHART

Name of school________________________
Class____________________
Age______________

Registration No.	Sl. No.	Name of student	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.

S.H. C./S. H. II.

Inspection of the following three times a month :—

Cleanliness (a) Clothes
(b) Hands
(c) Teeth
(d) Nail
(e) Hair

INSPECTION OF PERSONAL HYGIENE BY HEAD TEACHER.

Name of school______________________________

Class______________________________

Name of student______________________________

Marks	January	February	March	April	May	June	July	August	September	October	November	December
100												
90												
80												
70												
60												
50												
40												
30												
20												
10												
0												
Date												

C./S. H. III.

In the competitive examination the following points will have to be considered :

(a) Cleanliness

(b) No. of marks obtained from Health Habits Training Booklet.

(c) 'Students' Co-operation

(d) Correctness from disease

(e) Health Teaching

(f) Health work done outside school

(g) Community Games.

FIRST IN CLASS FOR HEALTH WORK

Name of the School ____________

____

Class ____________

Month	Name of the Student
January	
February	
March	
April	
May	
June	
July	
August	
September	
October	
November	
December	

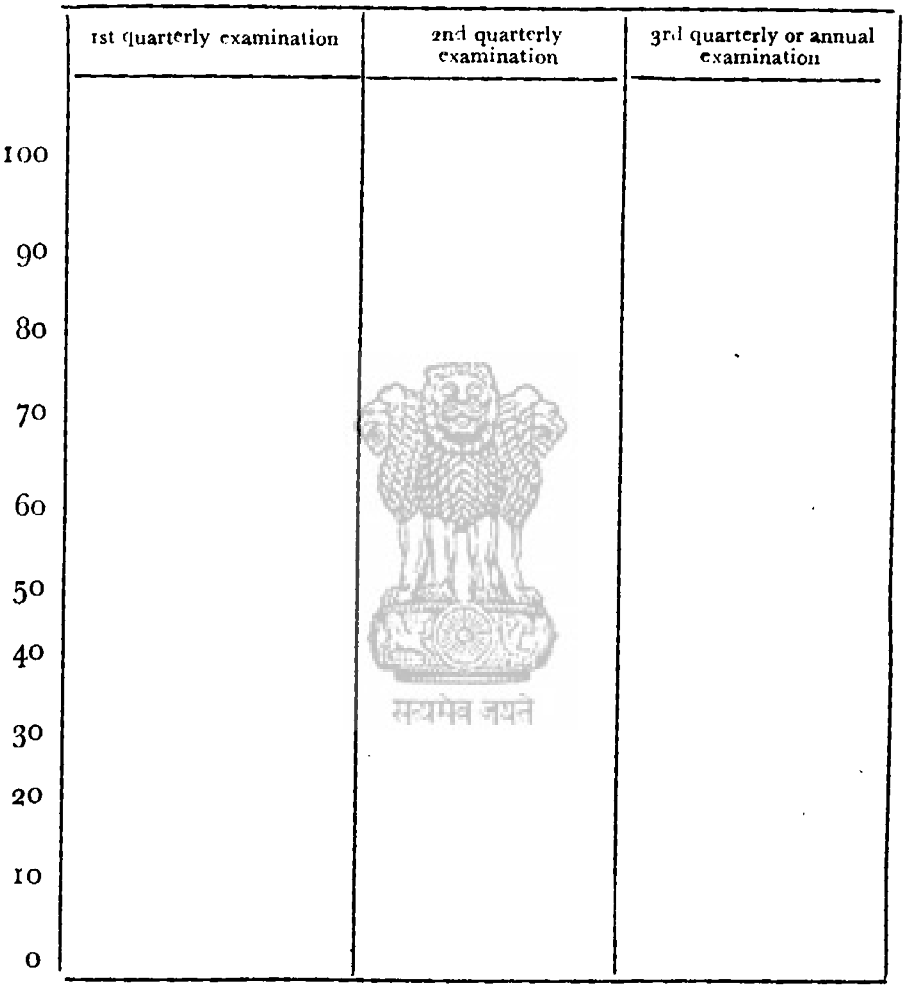
S.H.C./S.H. VI.

WEIGHT CHART

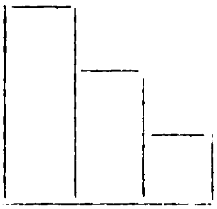
Name of school………………………………………………………

Class…………………………………………………………………

Increase or decrease of weight is a major sign of health or disease.



Bar diagm.



10% inrcease over normal weight according to age.

10%less than normal weight according to age.

More than 10% less than normal weight according to age.

S.H.C/S.H.V.

Defects found at Medical Inspection and the number corrected

No. of students examined......
No. of defectives ....

Date of Health Inspection...........

Total No. of defects........
No. of defect corrected......

Defects	Defects corrected
Malnutrition	
Uncleanliness	
Vaccination against pox . . .	
Defective vision	
Teeth and gums	
Glands	
Tonsils	
Anaemia	
Skin	
Worm	
Scabies	
Lice	
Vitamin deficiency . . .	
TOTAL .	
Total inoculated against cholera .	
Total No. vaccinated against pox .	
No. of defective children . .	
No. of defects corrected . . .	

Serial No.

SCHOOL HEALTH CLINIC

Name :

Class :

School

Date	Complaints	Findings	Diagnosis	Treatment

RECORD OF THE HEIGHT AND WEIGHT

Name of Student	Register No.	Age	Boy or Girl	Height	Standard weight according to height	WEIGHT			REMARKS
						First quarterly examination	Second quarterly examination	Third quarterly examination	

3—3 D.G.H.S./62

RURAL HEALTH UNIT AND TRAINING CENTRE

SINGUR. Serial No.

MEDICAL INSPECTION FORM

School.................................. Class.............. Section..............

Name of the Pupil.......................... Sex.... Date of Birth............ Age......

Name of the Guardian.................................... Village.....................

	Date of Examination		
General Condition—	(i)....19 .	(ii)....19 .	(iii)....19 .
1. Regularity of attendance			
2. Height			
3. Weight			
4. Posture			
5. *Chest—*			
(a) Full Inspiration			
(b) Full expiration			
6. Personal Cleanliness			
7. Clothing			
8. Foot Wear			
9. *Whether in the Teacher's Opinion—*			
(a) Bright			
(b) Mediocre			
(c) Backward			
(d) Dull			
(e) Delinquent			
10. Any other abnormality detected			
11. *Post History with date—*			
Measles			
Whooping Cough			
Diphtheria			
Smallpox			
Typhoid Fever			
Cholera			
Rheumatic Fever			
Pleurisy			
Malaria			
Fits			
Severe Accident			
12. Family History			
13. *History of Immunization*			
(a) Smallpox Vaccination—			
Primary—			
Date			
Re-Vaccination—			
Date			
(b) Cholera—			
Date			
(c) T. A. B.—			
Date			
(d) Diphtheria—			
Date			

	Date of Examination		
	(i)....19	(ii)....19	(iii)....19
General Condition—contd.			
13. *History of Immunization*—contd.			
(e) Pertussis—			
Date			
(f) B. C. G.—			
Date			
Special Condition—			
14. *Nutrition*—			
Good			
Fair			
Poor			
Fat			
15. *Gastro-intestinal System*—			
(a) Mouth and Tongue—			
Stomatitis			
Glossitis			
Oral sepsis			
Tongue tie			
(b) Teeth and Gum—			
Caries			
Tartar or dirty			
Pyorrhoea			
Spongy gum			
(c) Diarrhoea			
(d) Dysentry			
(e) Worm			
(f) Enlarged liver (Measurement)			
(g) Enlarged Spleen			
(h) Any other abnormality			
16. *Circulatory System*—			
Heart—			
(a) Functional defect			
(b) Organic defect			
(c) Congenital			
(d) Pulse			
(e) Anaemia			
17. *Respiratory System*—			
(a) Throat—			
Septic/Enlarged tonsils			
Pharyngitis			
(b) Lungs—			
Pleurisy			
Chronic bronchitis			
Bronchial asthama			
Eosinophilic lung			
Whooping Cough			
Tuberculosis—			
Suspected			
Definite			

N.B.—Item No. 13 of this form is to be filled up by the School Nurse and kept ready for the School Medical Officer.

Special Condition—contd.	Date of Examination		
	(i)......19 .	(ii)......19 .	(iii)...19 .
18. *Special Sense* :—			
(*a*) Nose—			
Epistaxis			
Chronic Nasal Catarrh			
Adenoids			
Deviated nasaeleptum			
(*b*) Ear—			
Defective hearing			
Otorrhoea			
Earache			
19. *Genito-urinary system* :—			
(a) Males—			
Phimosis			
Inguinal Hernia			
Any other defects			
(b) Females—			
Age at onset of Menstruation			
Regularity			
Any other Symptom			
Associated with M. Pd.			
Any other defects			
20. *Glandular System*—			
Enlarged Thyroid			
Enlarged Lymphgland—			
(a) Cervical			
(b) Axillary			
(c) Submaxillary			
(d) Others			
Mumps			
21. *Nervous System*—			
Mental Condition			
Epilepsy			
Tics			
Paralysis			
Muscular wasting			
Bed wetting			
Other defects			
(*c*) Speech—			
Stammering			
Other defects			
(*d*) Eye—			
Vision $\frac{\text{R.E.}}{\text{L.E.}}$			
Exophthalmos			
Nightblindness			
Conjunctivitis			
Xerosis			

Special Condition—concld.	Date of Examination		
	(i)......19 .	(ii)......19 .	(iii)...19 .
21. *Nervous System*—contd.			
(d) Eye—contd.			
Diseases of lids and sac			
Trachoma			
Corneal opacity			
Squint			
Glasses worn			
Other defects			
22. *Skin and Scalp*—			
Phrenederma			
Scabies			
Ringworm			
Eczema			
Furunculosis			
Leprosy			
Leucoderma			
Tinea and Fungs			
Psoriasis			
Lice			
23. *Bones and Joints*—			
Artrhitis			
Rickets			
Other defects			
24. *Fitness for exercise*—			
Normal			
Moderate			
None			
25. *Laboratory Examination*—			
Stool			
Urine			
Blood			
Throat Swab			
X-Ray of Chest			

REMARKS

Signature of School Health Officer

List of experts, officials, organizations, etc., who gave their expert opinion with regard to school health.

Sl. No.	Name & Designation	Interview held on	Place
1.	Shri H. Majumdar, Principal, Banipur Basic Training College.	28.6.1960	A.I.I.H & P.H., Cal.
2.	Shri (Dr.) Ray Chowdhury Secy. Board of Sec. Education.	,,	,,
3.	Dr. Bagchi from Calcutta Corporation.	,,	,,
4.	Dr. L. M. Bhattacharjee, Professor of Epidemiology A.I.I.H. & P.H., Calcutta.	,,	,,
5.	Dr. M. N. Rao, Professor of Industrial Health, A. I. I. H. & P. H., Cal.	,,	,,
6.	Dr. A. R. Sunderajan Professor of nutrition, A. I. I. H. and P. H., Calcutta.	,,	,,
7.	Mr. Majumdar, Professor of P. H. Engineering, A. I. I. H. and P. H., Calcutta.	,,	,,
8.	Dr. J. K. Shukla, Director, National Institute of Basic Education, Govt. of India, New Delhi.	20-8-1960	III meeting of SHC. Vigyan Bhavan.
9.	Mrs. Tara Ali Baig, Genl. Secy., Indian Council for Child Welfare, New Delhi.	,,	,,
10.	Mr. J. K. Gujral, Vice-President, New Delhi Municipal Corporation, New Delhi.	,,	,,
11.	Maj. G. S. Godiwalla, Health Officer, New Delhi.	,,	,,
12.	Dr. P. N. Taneja, Professor of Paediatrics, All India Institute of Medical Sciences, New Delhi-16.	,, A/N	,,
13.	Dr. L. D. Malhotra, Vice-President, Delhi Medical Association, Delhi.	,,	,,
14.	Dr. G. D. Bhalla, Hon. Secy., Delhi Medical Association, Delhi.	,,	,,
15.	Dr. Daljit Singh, Jt. Secy., Delhi Medical Association, Daryaganj, Delhi.	,,	,,
16.	Dr. Mahesh C. Gupta, Delhi Medical Association, Delhi.	,,	,,
17.	Lt. Col. M. S. Boparai, Chief Health Officer, Delhi Corporation, Delhi.	,,	,,
18.	Mr. R. K. Bountra, Chief Education Officer, Delhi Corporation, Delhi.	,,	,,
19.	Shri S. Balakrishna Joshi, Headmaster, The Hindu Theological High School, Madras.	12-9-1960 to 14-9-1960	IV meeting at Madras
20.	Dorothy A. Huskey, Public Health Education Adviser, Madras State Health Department, Madras.	,,	,,
21.	Shri S. Krishnaratnam, Headmaster, The Besant Theosophical High School, Madras-20.	,,	,,
22.	Shri K. M. Koshy, Headmaster, Wesley High School, Royapettah, Madras-14.	,,	,,
23.	Shri B. A. Nandagopal, Principal, Govt. School for the Blind, Poonamalle (Madras).	,,	,,

Sl. No.	Name & Designation	Interview held on	Place
24.	Shri M. B. Prabhu, Child Consultant, Egmore, Madras.	12-9-1960 to 14-9-1960	IV meeting at Madras
25.	Shrimati Hemawathy, Headmistress, Chintadripet, Kalyanam Girls High School, Madras-2	,,	,,
26.	Shri P. K. Vaidyanathan, Headmaster, Govt. Basic Training School, Chingleput.	,,	,,
27.	Dr. David Samuel, Principal, Christ Church High School, Madras-2.	,,	,,
28.	Shri K. Subrahmanyam, Member, Production Committee, Children Film Society, Madras.	,,	,,
29.	Dr. S. T. Achar, Director & Professor of Paediatrics, Institute of Paediatrics, Madras Medical College, Madras.	,,	,,
30.	Dr. N. D. Sundaravadively, Director of Public Instruction, Madras.	,,	,,
31.	Shri U. Srinivasan, Secy., Education & Public Health Dept., Madras.	,,	,,
32.	Dr. V. R. Thayumanaswami, Director of Medical Services, Madras.	,,	,,
33.	Dr. N. Parthasarathy, Director of Public Health, Madras.	,,	,,
34.	Shri Govindarajan, Director, King Institute, Guindy. Madras.	,,	,,
35.	Shri A. Venkatesan, Director of Agriculture, Madras.	,,	,,
36.	Shri R. Subramaniam, Director of Harijan Welfare, Madras.	,,	,,
37.	Shri T. N. Seshan, Dy. Secretary, Rural Development and Local Administration, Madras.	,,	,,
38.	Shri Thayumanasundaram, Spl. Addl. P. A. to the Director of Harijan Welfare.	,,	,,
39.	Shri S. Subrahmanyam, Dy. Secretary, Health, Madras.	,,	,,
40.	Dr. V. Rama Iyer, Asst. Director of Public Health.	,,	,,
41.	Shri T. P. Kothandaraman, Dy. Secy., Home Department, Madras.	,,	,,
42.	Shri K. V. Ramanathan, Dy. Secy. (Education), Education & Public Health Department, Madras.	,,	,,
43.	Shrimati Kamalambujammal, M. L. A., (Social Welfare), Member, Extension Project, Madras State.	,,	,,
44.	Shrimati Sarojini Varadappan, Hony. Secy., All India Women's Council, Madras.	,,	,,
45.	Shri Mavda Krishnamurthy, Hon. Secy., Avvai Home & Women's Indian Association, Madras.	,,	,,
46.	Shri T. S. Rajaratnam, Madras Seva Sadan, Gen. Hon. Secy., I.C.S.W., Madras.	,,	,,
47.	Shrimati Mary Clubwala Jadhav, Hony. Secy., Guild of Social & Seva Samajam, Bala Vihar Vikas, Madras.	,,	,,
48.	Shri S. A. Cherian, S. S. W. A. B., Secretary, Madras Branch, President, Madras City.	,,	,,

Sl. No.	Name & Designation	Interview held on	Place
49.	Shri K. N. George, Director, Madras School of Social Work, Madras.	12-9-1960 to 14-9-1960	IV meeting at Madras.
50.	Shri S. R. Venkataraman, Secy., Servants of India Society. Ex-President of M.P. (Central) Executive Committee Member-Vice President, Indian Medical Association. Assistant Secretary to Govt., Home Department, Madras.	,,	,,
51.	Mr. Luther M. Ambrose, Consultant to Ministry of Education in Rural Higher Eduction, New Delhi.,	4-5-1961	V meeting at Vigyan Bhavan, New Delhi.
52.	Mr. Dale Wantling, Chief Education Adviser, TCM, New Delhi.	,,	,,
53.	Mr. E. A. Pires, Principal, Central Institute of Education, New Delhi.	,,	,,
54.	Shrimati B. C. Dutt, Co-ordinator, Extension Service Dept., Central Institute of Education, Delhi.	,,	,,
55.	Miss Margaret E. Patterson, Ford Foundation, New Delhi.	,,	,,
56.	Mr. A. K. Singh, Director, Bal Bhavan, New Delhi.	,,	
57.	Shrimati Kaushalya Nirula, Principal, Nav Hind Girls Higher Secondary School, Rohtak Road, New Delhi.	5-5-1961	,,
58.	Mr. Sen Gupta, Principal, Municipal Higher Secondary School for Boys, New Delhi.	,,	,,
59.	Mr. B. K. Garg, Principal, Gandhi Memorial Grand Multipurpose Higher Secondary School, Shahdara, Delhi.	,,	,,
60.	Shri Asam Ram Sharma, Headmaster, M. B. School, Lakshmibai Nagar, New Delhi.	,,	,,
61.	Mr. S. Sindhu, Principal, Government Higher Secondary School, No. 2, Lajpat Nagar, New Delhi,	,,	,,
62.	Mr. John C. Lawrence. TCM, New Delhi.	,,	,,
63.	Dr. R. Buzina, Nutrition Officer, WHO, New Delhi.	,,	,,
64.	Mrs. S. Bhatnagar, Principal, Higher Secondary School, Shanti Nagar, New Delhi.	,,	,,
65.	Shri D. D. Hill, Wheat Associates.	,,	,,
66.	Mrs. R. Pai, Asst. Secy., U. D. &. R. H. Department, Bombay.	16-6 1961	Bombay.
67.	Dr. J. K. Adranvala, Director of Public Health Bombay State, Poona.	,,	,,
68.	Dr. B. R. Patil, O. S. D., D. E. S. Officer, Poona.	,,	,,
69.	Shri B. D. Save, Educational Inspector, Bombay.	,,	,,
70.	Dr. H. S. Kapadia, Medical Officer (Schools), Bombay Municipality, Bombay.	,,	,,
71.	Shri N. N. Elijah, Asst. Secy., Govt. of Maharashtra, C. &. R. D. D., Bombay.	,,	,,
72.	Dr. M. B. Daver, Dy. Director of Public Health, Poona.	,,	,,
73.	Dr. K. B. Ganguly, Dy. Director of Public Health, Poona.	,,	,,
74.	Dr. R. Grauias, Medical Officer of Health, Poona Municipal Corpn., Poona.	,,	,,

Sl. No.	Name & Designation	Interview held on	Place
75.	Dr. D. G. Wakharkar, State Inspector for Physical Education Poona.	16-6-61	Bombay.
76.	Shri K. Khandvala, Education Officer, Bombay Municipal Corpn., Bombay.	,,	,,
77.	Dr. V. N. Jai, Dept. of Nutrition, Haffkine Institute, Bombay.	,,	,,
78.	Dr. S. Bedekar, Asst. Director (MCH), Poona.	,,	,,
79.	Mrs. Mithan J. Lam, President, All India Womens Conference, Bombay.	,,	,,
80.	Shrimati T. P. Kher, Headmistress, G. E. Institute, Girls' High School, Dadar, Bombay.	,,	,,
81.	Shrimati G. Billimoria, Chairman, United Women's Organization Committee, Bombay.	,,	,,
82.	Shrimati Sushila Joshi, President, Bombay State Women's Council, Bombay.	,,	,,
83.	Shrimati P. Gosalia, Secretary, Bombay Pradesh Congress Mahila Vibhag, Bombay.	,,	,,
84.	Rev. Dr. H. O. Mascerentes, Jt. Director, Society of Servants of God, Bombay.	,,	,,
85.	Dr. (Miss) Sundari P. Vaswani, Society of Servants of God, Bombay.	,,	,,
86.	Dr. K. V. Panse, Research Officer, Institute of Science, Bombay.	,,	,,
87.	Mrs. Lilavati Banker, Hon. Jt. Secy. of United Women's Orgns. Committee, Bombay.	,,	,,
88.	Dr. K. Chitale, ICMR Research Worker regarding health of pupils in Poona and organiser of Students Health Association, Poona.	,,	,,
89.	Shri G. K. Gaokar, Bombay City Social Education Committee, Bombay.	,,	,,
90.	Shri S. Powari, President, Headmasters Association, Bombay.	,,	,,
91.	Mrs. Leela Jog, Hon. Secy. All India Women's Food Council, Bombay.	,,	,,
92.	Miss M. S. Kotnis, Sr. Lady Nutritionist, Dept. of Nutrition, Haffkine Institute, Bombay.	,,	,,
93.	Shri P. Y. Dixit, Principal, D. S. High School, Bombay.	,,	,,
94.	Shri F. J. Heredia, Municipal Commissioner, Ahmedabad.	18-6-1961	Ahmedabad.
95.	Shri G. P. Bhatt, Principal, University Experimental School, M. S. University, Baroda.	,,	,,
96.	Dr. N. D. Mehta, Asst. Director of Public Health, Ahmedabad.	,,	,,
97.	Dr. V. D. Shah, Assistant Director of Public Health, Ahmedabad.	,,	,,
98.	Shri S. P. Devatia, Hon. Secy., Sanitary Assn., Ahmedabad.	,,	,,
99.	Shri M. C. Patel, Asst. Secy., Sanitary Assn., Ahmedabad.	,,	,,
100.	Dr. R. C. Dalal, Secy., Ahmedabad Medical Society, Ahmedabad.	,,	,,
101.	Shri M. N. Gadhia, Asst. Administrative Officer, Dist. School Board, Ahmedabad.	,,	,,
102.	Shri M. L. Rawal, Prof. of Preventive Medicine, B. J. Medical College, Ahmedabad.	,,	,,

Sl. No.	Name & Designation	Interview held on	Place
103.	Dr. V. T. Kothari, Health Officer, Baroda Municipality, Baroda.	18-6-1961	Ahmedabad
104.	Dr. V. H. Thakor, Dy. Director of Public Health Services, Baroda Division.	,,	,,
105.	Mrs. G. A. Maroo, Health Visitor, Gujarat Research Institute, Ahmedabad.	,,	,,
106.	Dr. I. G. Bhatt, Hon. Secy., Ahmedabad Medical Society, Ahmedabad.	,,	,,
107.	Shri F. M. Bhagat, Principal, Democratic High School, Ahmedabad.	,,	,,
108	Dr. S. H. Patel, Hony. Paediatrician, Civil Hospital, Ahmedabad.	,,	,,
109.	Dr. (Mrs.) Jyotsna Shah, Officer on Special Duty, Govt. of Gujarat, Ahmedabad.	,,	,,
110.	Shrimati S. Chitalkar, Supdt., Nursing Service, Govt. of Gujarat, Ahmedabad.	,,	,,
111.	Dr. (Mrs.) P. Verma, Asst. Director of Public Health, Ahmedabad.	,,	,,
112.	Dr. (Miss) J. G. Fadia, Asst. Director of Public Health, Rajkot Division.	,,	,,
113.	Dr. H. F. Daroga, Dy. Director of Public Health Services, Rajkot Division.	,,	,,
114.	Dr. T. B. Patel, Director of Health & Medical Services, Ahmedabad.	,,	,,
115.	Shri A. S. Patel, Administrative Officer, Municipal School Board, Ahmedabad.	,,	,,
116.	Shrimati Pushpavati Mehta, Gujarat State Social Welfare Board, Ahmedabad.	,,	,,
117.	Shri D. L. Sharma, Joint Director of Education, Ahmedabad.	,,	,,
118.	Shrimati Indira Bhatt, Hon. Genl. Secy., Indian Conference of Social Work, Ahmedabad.	,,	,,
119.	Dr. Leela Shah, Hony. General Secy., Gujarat Bal Kalyan Sangh, Ahmedabad.	,,	,,
120.	Dr. P. R. Trivedi, Hony. Secy, Gujarat State Indian Medical Association, Ahmedabad.	,,	,,
121.	Dr. A. P. Shukla, President, Gujarat State Indian Medical Association, Ahmedabad.	,,	,,
122.	Shri Ratubhai M. Adani, Minister for Community Development, Govt. of Gujarat, Ahmedabad.	19-6-1961	,,
123.	Shri M. C. Shah, Minister for Health.	,,	,,
124.	Shri H. K. Desai, Minister for Education.	,,	,,
125.	Shrimati Kamlaben M. Patel, Dy. Minister for Health	,,	,,
126.	Shrimati Urmillaben P. Bhatt, Deputy Minister for Social Welfare.	,,	,,
127.	Shri M. Habibuddin, I.A.S., Secretary, Education & Labour Dept., Gujarat.	,,	,,
128.	Shri J. C. Shah, I.A.S., Secretary, Health & Industries Department, Gujarat.	,,	,,
129.	Dr. Jivraj N. Mehta, Chief Minister, Gujarat State.	,,	,,
130.	Shri Chauhan, Director, Social Welfare Board, Ahmedabad.	,,	,,
131.	Shri N. T. Karnani.	,,	,,

List of experis, officials, orgamizations, etc., who gave their expert opinion with regard to school health.

Sl. No.	Name & Designation	Interview held on	Place
1.	Dr. K. Mitra, C. I. T. Plot No. 114, Badas Roy Lane, Calcutta.	29-6-1960	Calcutta.
2.	Mrs. Anjali Sen, Hon. Secy., Saral Memorial School, Meal Service, Govt. of West Bengal.	,,	,,
3.	Dr. D. Roy Chowdhury, Indian Medical Association, Calcutta.	,,	,,
4.	Lt. Col. R. K. Chakravarty, Indian Medical Association, Calcutta.	,,	,,
5.	Dr. Nandi, Indian Medical Association, Calcutta.	,,	,,
6.	Dr. Sen Gupta, Indian Medical Association, Calcutta.	,,	,,
7.	Shri A. K. Chaudhuri, Asst. Secy., Board of Secondary Education, Govt. of West Bengal, Calcutta.	,,	,,
8.	Shri H. Banerjea, Development Commissioner, Govt. of West Bengal, Calcutta.	,,	,,
9.	Shri S. K. Gupta, Secy., Food & Relief Dept., Govt. of West Bengal, Calcutta.	,,	,,
10.	Lt. Genl. D. N. Chakravarty, Secy., Dept. of Health and Director of Health Services, Govt. of West Bengal, Calcutta.	,,	,,
11.	Shri R. Ghosh, Director of Agriculture, Govt. of West Bengal, Calcutta.	,,	,,
12.	Shri S. C. Roy, Joint Director of Agriculture (Extension), Govt. of West Bengal, Calcutta.	,,	,,
13.	Shri B. K. Neogy, Chief Inspector of Secondary Education, Govt. of West Bengal, Calcutta.	,,	,,
14.	Miss M. Bose, Chief Inspectoress of Women Education, Govt. of West Bengal, Calcutta.	,,	,,
15.	Dr. S. K. Chatterjee, Deputy Director of Health Services, Govt. of West Bengal, Calcutta.	,,	,,
16.	Dr. S. R. Sen Gupta, Asst. Director of Health Services (Nutrition & Food Adulteration), Govt. of West Bengal, Calcutta.	,,	,,
17.	Dr. (Mrs.) A. Banerjea, State Family Planning Office, Govt. of West Bengal, Calcutta.	,,	,,

Sl. No.	Name and Designation	Interview held on	Place
18.	Dr. B. K. Das,' Asst. Director of School Health & Health Education, Govt. of West Bengal, Calcutta.	29-6-1960	Calcutta.
19.	Dr. R. Gupta, Dy. Asst. Director of Health Services (Health Educationt, Govt. of West Bengal, Calcutta.	,, ,,	,, ,,
20.	Dr. J. Nath, Dy. Asst. Director of Health Services (School Health), Govt. of West Bengal, Calcutta.		
21.	Dr. J. K. Basu, Medical Advisor and Secretary, Board of Health, Calcutta University, Calcutta.	,,	,,
22.	Dr. Phulrenu Guha, State Social Welfare Board, Calcutta.	30-6-1960	A. II P. H., Calcutta.
23.	Shrimati Panna Roy, State Social Welfare Advisory Board, West Bengal, Calcutta.	,,	,,
24.	Smt. Mira Datta Gupta, Chairman, All India Women's Council, Calcutta.	,,	,,
25.	Smt. Sati Sinha, Secy., All India Women's Council, Calcutta.	,,	,,
26.	Smt. Subhadra Haksar, Chairman, West Bengal Women's Food Council, Calcutta.	,,	,,
27.	Smt. Secy. West Bengal Women's Food Council, Calcutta.	,,	,,
28.	Mr. (Mrs.) Asru Das, West Bengal Medical College, Calcutta.	,,	,,
29.	Dr. (Mrs.) Muktha Sen, Director, All India Institute of Hygiene & Public Health, Calcutta.	28-6-1960	A. I. I. H. & P. H., Calcutta.
30.	Dr. Mukherji, Associate Prof. of Paediatrics, A. I. I. H. & P. H., Calcutta.	,,	,,
31.	Mrs. Zakariah, Asst. Prof. of Nursing, A. I. I. H. & P. H., Calcutta.	,,	,,
32.	Mr. J. C. Das, Principal, David Hare Training College, Calcutta.	,,	,,
33.	Mr. Guha, Sanitary Engineering Dept., A. I. I. H. & P. H., Calcutta.	30-6-1960	,,
34.	Dr. Saha, A. I. I. H. & P. H., Calcutta.	,,	,,
35.	Dr. Mathen, A. I. I. H. & P. H., Calcutta.	,,	,,

List of officials interviewed at Bangalore in connection with School Health Committee

1. Shri Anna Rao Ganamukhi, B.A., LL.B., Minister for Education, Bangalore.
2. Shri Kadir Mohiudin, Under Secretary, Public Health, Labour and Municipal Administration Department, Bangalore.
3. Shri Murty, Deputy Secretary, Agriculture Department, Bangalore.
4. Shri Mohamed Rohamathulla, I. A. S., Secretary to Government, Education Department, Bangalore.
5. Shri S. A. L. Razvi, I. A. S., Development Commissioner, Bangalore.
6. Dr. C. Gopalraj Chetty, B.A., M.B.B.S., D.P.H., M.P.H., Director of Public Health, Bangalore.
7. Dr. V. R. Naidu, Director of Medical Services, Bangalore.
8. Shri B. Birappa, Director of Food Supplies, Bangalore.
9. Shri A. G. Deve Gowda,. Director of Public Instruction, Bangalore.
10. Shri B. Naganand, Director of Technical Education, Bangalore.,
11. Shri B. V. Iyengar, Secretary to Government, Development Department, Bangalore.
12. Dr. S. Nagaraj, Asst. Director of Health Services, Bureau of Health Education Bangalore.
13. Mr. M. R. Arakeri, Jt. Director of Agriculture, Bangalore.
14. Smt. Indira V. Shenoi, State Social Welfare Board, Bangalore.
15. Dr. R. Rajagopalan, Central Food Technological Research Institute, Mysore.
16. Dr. V. Balu, C. F. T. R. I., Mysore.
17. Dr. H. Krishna Rao, Health Officer, Corporation, Bangalore.
18. Shri T. G. Sathyanarayana, Principal Rastreeya, Vidyalaya Teachers Training College, Bangalore.
19. Rev. Mother Rene, Lady Superintendent, St. Theresas Teachers' Training Institute, Bangalore.
20. Shri K. V. Doreswamy, Principal, Teachers Training College Malleswaram, Bangalore.
21. Mrs. Dore Raj, Head Mistress, Kamalabai's Girls High School, Bangalore.
22. Shri K. Nanjundiah, Head Master, National High School, Bangalore.
23. Rev. Father Callho S. J., Head Master St. Joseph's Indian High School, Bangalore.
24. Shri K. K. Mohuddin, Under Secretary, L. S. G. & P. H. Department, Bangalore.
25. Shri Surendar Nath Rao, Asstt. D. P. I., Bangalore.
26. Shri Sankar Rao, Secretary, Public Health Department, Bangalore.
27. Dr. T. S. Jayaram, President, Indian Medical Association, Bangalore.
28. Smt. Lakshmi P. Krishnappa, Chairman, Indian, Red Cross, Society, H. B. Samaj Road, Bangalore.
29. Smt. M. R. Lakshmamma, M. L. C., Surveyers' Street, Bangalore.
30. Shri Rama Rao, Secretary, National Education Society, Bangalore.

List of officials interviewed at Mysore in connection with School Health Committee

1. Shri R. C. Bhutiani, Senior Scientific Officer, C. F. T. R. I., Mysore.
2. Shri R. Rajagopalan, Senior Scientific Officer, C. F. T. R. I., Mysore.
3. Dr. D. S. Bhatia, Assistant Director, C. F. T. R. I., Mysore.
4. Dr. A. Sreenivasan, Deputy Director, C. F. T. R. I., Mysore.
5. Dr. S. Nagaraj, Asstt. Director of Health Services, Bangalore.
6. Dr. M. Swaminathan, C. F. T. R. I., Mysore.
7. Dr. R. K. Bhagwan, C. F. T. R. I., Mysore.
8. Dr. V. Subrahmanian, Director, C. F. T. R. I., Mysore.
9. Shri J. M. Continho, Headmaster, St. Philomen's High School, Mysore.
10. Shri S. Raja Gopala Ienger, Saradavilas High School, Mysore.
11. Shri N. Rama Rao, District Education Officer, Mysore State, Mysore.
12. Shri J. U. Ramanaich, President, Recognised High Schools Association, Mysore.
13. Shri H. V. Srirangaraju, Deputy Director of Public Instruction, Mysore.
14. Shri B. V. Bamimiah, Principal, D. B. College, Mysore.
15. Smt. Kameswaravarkuppaswamy, Professor's Quarters, Saraswathipuram, Mysore.
16. Mary Vincent, Representing Good Shepherd Convent School, Mysore.
17. Dr. V. Balu, C. F. T. R. I., Mysore.
18. Smt. Leela Anjanappa, Member, Mysore State Social Welfare Board, Mysore.
19. Shri S. P. Anaker, District Health Officer, Mysore.

GLOSSARY

English Name	*Hindustani Name*
Agathi	Agasti, jaint
Amaranth	Chowlai
Amla	Amla
Asafoetida	Heeng
Bengal Gram	Kabuli Chana
Black Gram	Urd
Cauliflower	Gobi
Carrot	Gajar
Celery seeds	Til
Cowgram	Rawan
Coriander	Dhania
Cumin	Zira
Cucumber	Kakri
Cholam	Jowar
Curry Leaves	Gandhela
Eanugreek Leaves	Methi
French Leaves	Bakla
Garlic	Lasan
Ginger	Adrak
Gingelly Oil	Til Ka Tel
Green Gram	Moong
Guava	Amrood
Gram flour	Besan
Lentils	Masoor Dal
Mint	Podina
Mustard seeds	Rye
Mustard	Sarson
Millets	Jowar, Bajra, etc.
Papaya	Papita
Ragi	Mandal, Okra
Rape Leaves	Sarson Ka Sag
Raddish	Mooli
Spinach	Palak
Soya Bean	Bhat
Tapioca	Maravali, Simla Alu
Turmeric	Haldi
Tamarind	Imli

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सत्यमेव जयते